

**ELEMENT WASHINGTON DC LLC** 

7185 Oakland Mills Road, Columbia, MD 21046 USA Tel. 410.290.6652 / Fax 410.290.6654 http://www.element.com

MEASUREMENT REPORT FCC Part 30 5G mmWave

#### **Applicant Name:**

Samsung Electronics Co., Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-si Gyeonggi-do, 16677, Korea Date of Testing: 4/18 – 6/14/2022 Test Report Issue Date: 6/22/2022 Test Site/Location: Element Lab., Columbia, MD, USA Test Report Serial No.: 1M2204010046-01.A3L

FCC ID:	A3LSMF936U
APPLICANT:	Samsung Electronics Co., Ltd.
Application Type:	Certification
Model:	SM-F936U
Additional Models:	SM-F936U1
EUT Type:	Portable Handset
FCC Classification:	Part 30 Mobile Transmitter (5GM)
FCC Rule Part(s):	30
Test Procedure(s):	ANSI C63.26-2015, KDB 971168 D01 v03r01,
	KDB 842590 D01 v01r02

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.

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



FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dege 1 of 240
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 1 of 248
			V1.0



# TABLE OF CONTENTS

1.0	INTR	ODUCTION	7
	1.1	Scope	7
	1.2	Element Test Location	7
	1.3	Test Facility / Accreditations	7
2.0	PRO	DUCT INFORMATION	8
	2.1	Equipment Description	8
	2.2	Device Capabilities	8
	2.3	Test Configuration	8
	2.4	Software and Firmware	9
	2.5	EMI Suppression Device(s)/Modifications	9
3.0	DES	CRIPTION OF TESTS	10
	3.1	Measurement Procedure	10
	3.2	Radiated Power and Radiated Spurious Emissions	10
4.0	MEA	SUREMENT UNCERTAINTY	12
5.0	TES	T EQUIPMENT CALIBRATION DATA	13
6.0	SAM	PLE CALCULATIONS	14
7.0	TES	T RESULTS	15
	7.1	Summary	15
	7.2	Occupied Bandwidth	16
	7.3	Equivalent Isotropic Radiated Power	53
	7.4	Radiated Spurious and Harmonic Emissions	83
	7.5	Band Edge Emissions	189
	7.6	Frequency Stability / Temperature Variation	223
8.0	CON	ICLUSION	230
9.0	APP	ENDIX A	231
	9.1	VDI Mixer Verification Certificate	231
	9.2	Test Scope Accreditation	235

FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 2 of 248
			V1.0





# MEASUREMENT REPORT FCC Part 30



							EI	RP	
Band	Antenna	Bandwidth [MHz]	Tx Frequency [MHz]	CCs Active	Mode	Modulation	Max Power [W]	Max Power [dBm]	Emission Designator
					SISO	QPSK	0.560	27.48	95M2G7D
					2Tx	QPSK	1.355	31.32	95M2G7D
				1	2Tx	π/2 BPSK	1.363	31.35	91M9G7D
					2Tx	16QAM	0.765	28.84	95M2W7D
		100	24250 - 24450		2Tx	64QAM	0.529	27.24	95M9W7D
					2Tx	QPSK	0.314	24.96	197MG7D
				2	2Tx	π/2 BPSK	0.316	24.99	193MG7D
				2	2Tx	16QAM	0.239	23.79	196MW7D
n258 (24.25 -	J Patch				2Tx	64QAM	0.187	22.71	195MW7D
(24.25 - 24.45GHz)	JPaich				SISO	QPSK	0.566	27.53	46M3G7D
24.400112)					2Tx	QPSK	1.395	31.44	46M3G7D
				1	2Tx	π/2 BPSK	1.385	31.41	46M4G7D
		50	24250 - 24450		2Tx	16QAM	0.821	29.14	46M3W7D
					2Tx	64QAM	0.553	27.42	46M6W7D
				2	2Tx	QPSK	0.367	25.65	95M8G7D
					2Tx	π/2 BPSK	0.370	25.68	95M6G7D
					2Tx	16QAM	0.233	23.67	95M6W7D
					2Tx	64QAM	0.172	22.35	95M8W7D
					SISO	QPSK	0.673	28.28	-
					2Tx	QPSK	1.143	30.58	-
				1	2Tx	π/2 BPSK	1.138	30.56	-
					2Tx	16QAM	0.656	28.17	-
		100	24250 - 24450	i T	2Tx	64QAM	0.435	26.38	-
					2Tx	QPSK	0.252	24.02	-
				2	2Tx	π/2 BPSK	0.253	24.03	-
050				2	2Tx	16QAM	0.182	22.59	-
n258 (24.25 -	K Patch				2Tx	64QAM	0.164	22.15	-
(24.25 - 24.45GHz)	K Faich				SISO	QPSK	0.693	28.41	-
21.100112)					2Tx	QPSK	1.155	30.63	-
				1	2Tx	π/2 BPSK	1.147	30.60	-
					2Tx	16QAM	0.654	28.16	-
		50	24250 - 24450		2Tx	64QAM	0.446	26.49	-
					2Tx	QPSK	0.262	24.19	-
				2	2Tx	π/2 BPSK	0.262	24.18	-
				2	2Tx	16QAM	0.201	23.04	-
					2Tx	64QAM	0.163	22.13	-

EUT Overview (Band n258, 24.25-24.45GHz)

FCC ID: A3LSMF936U			Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 3 of 248
			V1.0



BandAntenneBandwidth [MH2]X Frequency ActiveCCs ActiveModulationMax Power (IW)Max Power (IBM)Emission DesignatorName<		EIRP						RP		
n258 (24.75- 25.25GHz)         J Patch         24750 - 25250         1	Band	Antenna		• •		Mode	Modulation			
n258 (24.75 - 25.26GHz)         194th         24750 - 25250         1         1         1         2Tx         100         0.986         29.52         94M7W7D           100         24750 - 25250         21Tx         640AM         0.686         27.32         94M7W7D           21X         640AM         0.626         27.21         197MG7D           21X         160AM         0.626         27.21         199MW7D           21X         160AM         0.322         25.21         199MW7D           21X         0PSK         0.998         28.99         46M267D           21X         0PSK         1.624         32.10         46M07D           21X         160AM         0.627         27.97         46MW7D           21X         640AM         0.626         27.43         96M67D           21X         640AM         0.626         27.43						SISO	QPSK	0.950	29.78	95M0G7D
n28 (24.75 - 25.26GHz)         j Patch         24750 - 25250         24750 - 25250         24750 - 25250         21X 2TX         160AM         0.886         29.52         94M7W7D           21X         GPSK         0.568         27.21         197MG7D         193MG7D           21X         GPSK         0.523         27.19         193MG7D           21X         640AM         0.322         25.21         199MW7D           25.25GHz)         950         24750 - 25250         15         195MW7D           50         24750 - 25250         15         15         21X         640AM         0.232         22.10         46M2G7D           21X         160AM         0.232         22.10         46M2G7D         21X         160AM         0.233         22.10         46M2G7D           21X         160AM         0.933         29.07         46M007D         21X         160AM         0.627         27.97         46M007D           21X         160AM         0.627         27.97         46M007D         21X         160AM         0.627         27.97         46M007D           21X         160AM         0.627         27.97         46M007D         21X         160AM         0.280         2.13<						2Tx	QPSK	1.448	31.61	95M0G7D
n258 (24,75) 25,250H10024750-2525024750-2525021764QAM0.54827.3994M7W7Dn258 (24,75) 25,250H2J Patch1121x0.75K0.52627.21197M67D21x16QAM0.33225.21199MW7D25,250H2J198M7D0.33225.21199MW7D25,250H2111 <td< td=""><td></td><td></td><td></td><td></td><td>1</td><td>2Tx</td><td>π/2 BPSK</td><td>1.496</td><td>31.75</td><td>92M3G7D</td></td<>					1	2Tx	π/2 BPSK	1.496	31.75	92M3G7D
n258 (24.75- 25.25GHz)         J Patch         Patch         2         2Tx         QPSK         0.526         27.21         197MG7D           25.25GHz)         J Patch         2         100         0.332         25.21         199MW7D           25.25GHz)         J Patch         2         164/04         0.322         25.21         199MW7D           25.25GHz)         J Patch         2         164/04         0.227         23.66         195MW7D           50         24750-25250         1         SISO         QPSK         0.998         29.99         46MQG7D           2TX         160AM         0.333         29.70         46MQG7D         27X         160AM         0.933         29.70         46MQG7D           2TX         160AM         0.687         2.74.0         96M507D         27.40         96M507D           2TX         160AM         0.265         27.40         96M507D         27.40         96M507D           2TX         160AM         0.266         23.73         96M307D         27.40         96M507D           2TX         160AM         0.266         23.73         96M307D         27.40         96M507D           2TX         160AM         0.268 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>2Tx</td> <td>16QAM</td> <td>0.896</td> <td>29.52</td> <td>94M7W7D</td>						2Tx	16QAM	0.896	29.52	94M7W7D
n258 (24,75- 25,25GHz)         J Patch           2         2         2         1 <th1< t<="" td=""><td></td><td></td><td>100</td><td>24750 - 25250</td><td></td><td>2Tx</td><td>64QAM</td><td>0.548</td><td>27.39</td><td>94M7W7D</td></th1<>			100	24750 - 25250		2Tx	64QAM	0.548	27.39	94M7W7D
n258 (24.75 - 25.25GHz)         J Patch         Image: Constraint of the second						2Tx	QPSK	0.526	27.21	197MG7D
n258 (24,75- 25.25GHz)         J Patch         Image: constraint of the second s					0	2Tx	π/2 BPSK	0.523	27.19	193MG7D
(24.75- 25.25GHz)         J Patch         Image: constraint of the second					2	2Tx	16QAM	0.332	25.21	199MW7D
<ul> <li>25.25GH2)</li> <li>25.25GH2)</li></ul>						2Tx	64QAM	0.227	23.56	195MW7D
<ul> <li>n258     (24.75 - 2550)     <li>24750 - 25250     </li> <li>24750 - 25250     275 - 25250     275 - 25250     275 - 25250     275 - 25250     275 - 25250 - 25250     275 - 25250 - 25250 - 25250 - 25250 - 25250 - 25250 - 25250 - 25250 - 25250 - 25250 - 25250 - 25250 - 25250 - 25250 - 2525</li></li></ul>		J Patch				SISO	QPSK	0.998	29.99	46M2G7D
1258         100         24750 - 25250         24750 - 25250         2Tx         16QAM         0.933         29.70         46M0W7D           2Tx         64QAM         0.627         27.97         46M1W7D           2Tx         0PSK         0.550         27.40         96M5G7D           2Tx         m/2 BPSK         0.554         27.43         96M3G7D           2Tx         m/2 BPSK         0.554         27.43         96M3G7D           2Tx         m/2 BPSK         0.554         27.43         96M3G7D           2Tx         16QAM         0.351         25.66         96M3W7D           2Tx         16QAM         0.236         23.73         97M1W7D           2Tx         64QAM         0.236         23.73         97M1W7D           2Tx         0PSK         1.316         31.19         -           2Tx         0PSK         1.313         31.18         -           2Tx         16QAM         0.760         28.81         -           2Tx         16QAM         0.518         27.15         -           2Tx         16QAM         0.518         27.15         -           2Tx         16QAM         0.182 <td< td=""><td>23.2301 (2)</td><td></td><td></td><td></td><td></td><td>2Tx</td><td>QPSK</td><td>1.624</td><td>32.10</td><td>46M2G7D</td></td<>	23.2301 (2)					2Tx	QPSK	1.624	32.10	46M2G7D
1005024750 - 252502TX64QAM0.62727.9746M1W7D1000.0000.0000.0000.0000.0000.0000.0000.0000.0001000.0000.0000.0000.0000.0000.0000.0000.0000.0001000.0000.0000.0000.0000.0000.0000.0000.0000.0001000.0000.0000.0000.0000.0000.0000.0000.0000.0001000.0000.0000.0000.0000.0000.0000.0000.0000.00010024750 - 25250100.0000.0000.0000.0000.0000.0000.00010024750 - 2525024750 - 2525021X100AM0.01827.150.0000.00					1	2Tx	π/2 BPSK	1.590	32.01	46M0G7D
100         24750 - 25250         27x         QPSK         0.550         27.40         96M5G7D           100         2Tx         T/2 BPSK         0.554         27.43         96M3G7D           2Tx         16QAM         0.351         25.46         96M3W7D           2Tx         16QAM         0.236         23.73         97M1W7D           2Tx         64QAM         0.236         23.73         97M1W7D           2Tx         64QAM         0.708         28.50         -           2Tx         0PSK         0.708         28.50         -           2Tx         0PSK         1.316         31.19         -           2Tx         100         24750 - 25250         2Tx         0PSK         1.313         31.18         -           2Tx         100         24750 - 25250         2Tx         0PSK         0.280         24.48         -           2         2Tx         0PSK         0.280         24.48         -         -           2         2Tx         0PSK         0.280         24.48         -         -           2         2Tx         16QAM         0.282         23.54         -         -						2Tx	16QAM	0.933	29.70	46M0W7D
n258 (24.75 - 25.25GHz)         K Patch         K Patch         24750 - 25250         2         2         T         T/2 BPSK         0.554         27.43         96M3G7D           100         2         7         160AM         0.351         25.46         96M3W7D           2         7X         160AM         0.236         23.73         97M1W7D           2         7X         640AM         0.236         23.73         97M1W7D           2         7X         640AM         0.236         23.73         97M1W7D           100         24750 - 25250         11         2Tx         0PSK         1.316         31.19         -           100         24750 - 25250         1         160AM         0.760         28.81         -           27X         160AM         0.518         27.15         -         -           21X         160AM         0.518         27.15         -         -           2255GHz)         2         7X         160AM         0.182         22.59         -           50         24750 - 25250         1         160AM         0.182         21.46         -           21X         160AM         0.829         23.14			50	24750 - 25250	ľ	2Tx	64QAM	0.627	27.97	46M1W7D
n258 (24.75- 25.25GHz)         K Patch         24750 - 25250         24750 - 25250         24750 - 25250         24750 - 25250         21K 2TX         160AM 64QAM         0.351         25.46         96M3W7D           1         2TX         64QAM         0.236         23.73         97M1W7D           2TX         64QAM         0.236         23.73         97M1W7D           1         SISO         QPSK         0.708         28.50         -           2TX         QPSK         1.316         31.19         -           1         2TX         Tr/2 BPSK         1.313         31.18         -           2TX         16QAM         0.518         27.15         -           2TX         16QAM         0.518         27.15         -           2TX         16QAM         0.518         27.15         -           2TX         0PSK         0.280         24.48         -           2TX         16QAM         0.182         22.59         -           25.25GHz         50         24750 - 25250         2TX         16QAM         0.182         22.59           50         24750 - 25250         2TX         0PSK         1.395         31.45         - </td <td></td> <td></td> <td rowspan="4">2</td> <td>2Tx</td> <td>QPSK</td> <td>0.550</td> <td>27.40</td> <td>96M5G7D</td>					2	2Tx	QPSK	0.550	27.40	96M5G7D
n258 (24.75 - 25.25GHz)         K Patch         Network         24750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         22750 - 25250         2100         2100         2100         2100						2Tx	π/2 BPSK	0.554	27.43	96M3G7D
n258 (24.75 - 25.25GHz)         K Patch         24750 - 25250         24750 - 25250         SISO 24750 - 25250         SISO 24750 - 25250         QPSK 24750 - 25250         0.708 27x         QPSK 1.313         0.116         31.19         -           100         24750 - 25250         24750 - 25250         1         2Tx         16QAM         0.760         28.81         -           21         27x         64QAM         0.518         27.15         -           22         21         77x         0PSK         0.280         24.48         -           21         21x         m/2 BPSK         0.279         24.46         -           21         21x         16QAM         0.182         22.59         -           21x         16QAM         0.182         22.59         -           21x         64QAM         0.182         22.59         -           21x         71/2 BPSK         1.385         31.41         -           50         24750 - 25250         1         1         27x         QPSK         1.385         31.41         -           21x         71/2 BPSK         1.395         31.45         -         -         27x         16QAM         0.826         2						2Tx	16QAM	0.351	25.46	96M3W7D
n258 (24.75 - 25.25GHz)         K Patch         24750 - 25250         1         2         TX         QPSK         1.316         31.19            100         24750 - 25250         1         1         2Tx         16QAM         0.760         28.81            21X         16QAM         0.518         27.15         -         -           21X         0PSK         0.280         24.48         -           21X         T/2 BPSK         0.279         24.46         -           21X         16QAM         0.226         23.54         -           21X         16QAM         0.182         22.59         -           25.25GHz)         50         24750 - 25250         21X         0PSK         0.182         22.59         -           50         24750 - 25250         1         2Tx         0PSK         1.385         31.41         -           50         24750 - 25250         1         1         2Tx         0PSK         1.395         31.45         -           21         21X         T1/2 BPSK         0.306         28.04         -         -           21         21X         0PSK         0.306         24.85<						2Tx	64QAM	0.236	23.73	97M1W7D
n258 (24.75 - 25.25GHz)         K Patch         1         24750 - 25250         1         1         2Tx         Tt/2 BPSK         1.313         31.18						SISO	QPSK	0.708	28.50	-
n258 (24.75 - 25.25GHz)         K Patch         100         24750 - 25250         24750 - 25250         2Tx         16QAM         0.760         28.81            n258 (24.75 - 25.25GHz)         K Patch         24750 - 25250         2Tx         G4QAM         0.518         27.15            21         QPSK         0.280         24.48             21         Tr/2 BPSK         0.279         24.46            21         16QAM         0.182         22.59            21         64QAM         0.182         22.59         -           21         64QAM         0.182         22.59         -           21         64QAM         0.182         22.59         -           21         21x         0PSK         0.718         28.56         -           21         21x         0PSK         1.385         31.41         -           21         21x         Tr/2 BPSK         1.395         31.45         -           21         21x         16QAM         0.636         28.04         -           21         21         0PSK         0.301         24.78         -						2Tx	QPSK	1.316	31.19	-
n258 (24.75 - 25.25GHz)         100         24750 - 25250         2Tx         64QAM         0.518         27.15            100         24750 - 25250         -         2Tx         QPSK         0.280         24.48            100         2Tx         16QAM         0.216         23.54            25.25GHz)         -         2Tx         16QAM         0.182         22.59            25.25GHz)         -         2Tx         64QAM         0.182         22.59            25.25GHz)         -         2Tx         64QAM         0.182         22.59         -           25.25GHz)         -         2Tx         64QAM         0.182         22.59         -           210         2Tx         0PSK         0.718         28.56         -           211         2Tx         QPSK         1.385         31.41         -           211         2Tx         16QAM         0.636         28.04         -           211         2Tx         16QAM         0.636         24.85         -           211         211         2Tx         QPSK         0.301         24.78         -					1	2Tx	π/2 BPSK	1.313	31.18	-
n258 (24.75 - 25.25GHz)         K Patch         Response         Left (24.75 - 25.25GHz)         21 km         QPSK         0.280         24.48			100	24750 - 25250	1	2Tx	16QAM	0.760	28.81	-
n258 (24.75 - 25.25GHz)         K Patch         Image: Rest of the system						2Tx	64QAM	0.518	27.15	-
n258 (24.75 - 25.25GHz)         K Patch         Image: Relation of the system of the s						2Tx	QPSK	0.280	24.48	-
n258 (24.75 - 25.25GHz)         K Patch         K Patch         Image: Constraint of the system of the sys						2Tx	π/2 BPSK	0.279	24.46	-
K Patch         K Patch         K Patch         Carbon Second Se					2	2Tx	16QAM	0.226	23.54	-
25.25GHz)       50       24750 - 25250		K Datah				2Tx	64QAM	0.182	22.59	-
50     24750 - 25250     1     2Tx     QPSK     1.385     31.41     -       50     24750 - 25250     1     2Tx     π/2 BPSK     1.395     31.45     -       50     24750 - 25250     2Tx     16QAM     0.829     29.19     -       2Tx     64QAM     0.636     28.04     -       2Tx     QPSK     0.306     24.85     -       2Tx     Tn/2 BPSK     0.301     24.78     -       2Tx     16QAM     0.215     23.33     -		K Palch				SISO	QPSK	0.718	28.56	-
50         24750 - 25250         21         2Tx         16QAM         0.829         29.19         -           50         24750 - 25250         2Tx         64QAM         0.636         28.04         -           2         2Tx         QPSK         0.306         24.85         -           2         2Tx         π/2 BPSK         0.301         24.78         -           2         2Tx         16QAM         0.215         23.33         -	20.2001 (2)					2Tx	QPSK	1.385	31.41	-
50         24750 - 25250         2Tx         64QAM         0.636         28.04         -           2         2Tx         QPSK         0.306         24.85         -           2         2Tx         Tr/2 BPSK         0.301         24.78         -           2Tx         16QAM         0.215         23.33         -					1	2Tx	π/2 BPSK	1.395	31.45	-
2Tx         QPSK         0.306         24.85         -           2         Tx         π/2 BPSK         0.301         24.78         -           2Tx         16QAM         0.215         23.33         -						2Tx	16QAM	0.829	29.19	-
2Tx         π/2 BPSK         0.301         24.78         -           2Tx         16QAM         0.215         23.33         -			50	24750 - 25250		2Tx	64QAM	0.636	28.04	-
2 2Tx 16QAM 0.215 23.33 -						2Tx	QPSK	0.306	24.85	-
2Tx 16QAM 0.215 23.33 -					2	2Tx	π/2 BPSK	0.301	24.78	-
2Tx 64QAM 0.178 22.49 -					2	2Tx	16QAM	0.215	23.33	-
						2Tx	64QAM	0.178	22.49	-

EUT Overview (Band n258, 24.75-25.25GHz)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dega 4 of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 4 of 248		
			V1.0		



Band	Antenna	Bandwidth								
		[MHz]	Tx Frequency [MHz]	CCs Active	Mode	Modulation	Max Power [W]	Max Power [dBm]	Emission Designator	
					SISO	QPSK	0.865	29.37	94M9G7D	
					2Tx	QPSK	1.757	32.45	94M9G7D	
				1	2Tx	π/2 BPSK	1.741	32.41	92M1G7D	
					2Tx	16QAM	1.020	30.09	94M8W7D	
		100	27550 - 28300		2Tx	64QAM	0.703	28.47	94M9W7D	
					2Tx	QPSK	0.539	27.32	194MG7D	
				2	2Tx	π/2 BPSK	0.526	27.21	192MG7D	
				2	2Tx	16QAM	0.337	25.27	194MW7D	
- 004	L Datab				2Tx	64QAM	0.262	24.18	194MW7D	
n261	J Patch				SISO	QPSK	0.836	29.22	46M2G7D	
					2Tx	QPSK	1.770	32.48	46M2G7D	
				1	2Tx	π/2 BPSK	1.768	32.48	46M1G7D	
					2Tx	16QAM	1.016	30.07	46M0W7D	
		50	27525 - 28325		2Tx	64QAM	0.713	28.53	45M9W7D	
				2	2Tx	QPSK	0.542	27.34	95M6G7D	
					2Tx	π/2 BPSK	0.543	27.35	95M8G7D	
					2Tx	16QAM	0.348	25.41	95M7W7D	
					2Tx	64QAM	0.247	23.92	96M0W7D	
					SISO	QPSK	0.454	26.57	-	
					2Tx	QPSK	1.735	32.39	-	
				1	2Tx	π/2 BPSK	1.731	32.38	-	
			27550 - 28300	1	2Tx	16QAM	1.071	30.30	-	
		100		i T	2Tx	64QAM	0.658	28.18	-	
					2Tx	QPSK	0.355	25.50	-	
					2Tx	π/2 BPSK	0.349	25.42	-	
				2	2Tx	16QAM	0.279	24.45	-	
-201	K Datah				2Tx	64QAM	0.250	23.98	-	
n261	K Patch				SISO	QPSK	0.529	27.23	-	
					2Tx	QPSK	1.612	32.07	-	
			1	2Tx	π/2 BPSK	1.660	32.20	-		
					2Tx	16QAM	1.012	30.05	-	
		50	27525 - 28325		2Tx	64QAM	0.630	27.99	-	
					2Tx	QPSK	0.374	25.72	-	
				2	2Tx	π/2 BPSK	0.372	25.70	-	
				2	2Tx	16QAM	0.300	24.77	-	
					2Tx	64QAM	0.224	23.49	-	

EUT Overview (Band n261)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dage E of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 5 of 248		
			V1.0		



							EI	RP	
Band	Antenna	Bandwidth [MHz]	Tx Frequency [MHz]	CCs Active	Mode	Modulation	Max Power [W]	Max Power [dBm]	Emission Designator
					SISO	QPSK	0.536	27.29	95M8G7D
					2Tx	QPSK	1.043	30.18	95M8G7D
				1	2Tx	π/2 BPSK	1.091	30.38	92M2G7D
					2Tx	16QAM	0.615	27.89	95M7W7D
		100	37050 - 39950		2Tx	64QAM	0.408	26.11	96M8W7D
					2Tx	QPSK	0.271	24.33	195MG7D
				0	2Tx	π/2 BPSK	0.277	24.43	191MG7D
				2	2Tx	16QAM	0.195	22.90	195MW7D
- 000	L Detab				2Tx	64QAM	0.135	21.32	196MW7D
n260	J Patch				SISO	QPSK	0.562	27.50	46M6G7D
					2Tx	QPSK	1.288	31.10	46M6G7D
				1	2Tx	π/2 BPSK	1.262	31.01	46M5G7D
					2Tx	16QAM	0.732	28.65	46M5W7D
		50	37025 - 39975		2Tx	64QAM	0.489	26.89	46M7W7D
				2	2Tx	QPSK	0.325	25.12	95M9G7D
					2Tx	π/2 BPSK	0.331	25.20	96M2G7D
					2Tx	16QAM	0.230	23.61	96M0W7D
					2Tx	64QAM	0.152	21.82	96M2W7D
					SISO	QPSK	0.589	27.70	-
					2Tx	QPSK	0.748	28.74	-
				1	2Tx	π/2 BPSK	0.714	28.54	-
					2Tx	16QAM	0.415	26.18	-
		100	37050 - 39950		2Tx	64QAM	0.281	24.48	-
					2Tx	QPSK	0.142	21.53	-
					2Tx	π/2 BPSK	0.143	21.54	-
				2	2Tx	16QAM	0.110	20.43	-
					2Tx	64QAM	0.096	19.82	-
n260	K Patch				SISO	QPSK	0.586	27.68	-
					2Tx	QPSK	0.752	28.76	-
				1	2Tx	π/2 BPSK	0.740	28.69	-
		50			2Tx	16QAM	0.418	26.21	-
			37025 - 39975		2Tx	64QAM	0.282	24.51	-
					2Tx	QPSK	0.168	22.26	-
					2Tx	π/2 BPSK	0.167	22.23	-
				2	2Tx	16QAM	0.115	20.62	-
					2Tx	64QAM	0.081	19.09	-
L	<u>I</u>		EU						

EUT Overview (Band n260)

**Note:** Due to similar antenna performance from the antennas after thorough investigation, the Occupied Bandwidth was only measured on one antenna for each band.

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dege C of 240		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 6 of 248		
			V1.0		



# **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.

### 1.2 Element Test Location

These measurement tests were conducted at the Element laboratory located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

#### 1.3 Test Facility / Accreditations

#### Measurements were performed at Element lab located in Columbia, MD 21046, 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 2041.01 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 (2451B) test laboratory with the site description on file with ISED.
- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreement.

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega Z of 249	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 7 of 248	
			V1.0	



# 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMF936U**. The test data contained in this report pertains only to the emissions due to the EUT's 5G mmWave function.

The EUT contains two patch antennas, referred to herein as Ant1 (J-Patch) and Ant2 (K-Patch). Each of the antennas is comprised of two separate antenna feeds - one for horizontal and one for vertical polarization. Only one array antenna can be active at a time.

Antenna	Name
Ant1	J Patch
Ant2	K Patch

The EUT supports up to 2CC for UL. For each CC, the EUT supports both 50MHz bandwidth and 100MHz bandwidth. The EUT supports a subcarrier spacing (SCS) of 120kHz with two transmission schemes, CP-OFDM and DFT-s-OFDM, with pi/2-BPSK, QPSK, 16-QAM, and 64-QAM modulations. Different Beam IDs are supported, each corresponding to a different position in space for each antenna. During testing, FTM (Factory Test Mode) was used to operate the transmitter. MIMO operation was achieved by enabling two Beam IDs at the same time: one is from the list of H Beam IDs and other is from the list of V Beam IDs.

Test Device Serial No.: 1334M, 1784M, 1764M

### 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1 and FR2), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5,6GHz), Bluetooth (1x, EDR, LE), NFC, UWB

### 2.3 Test Configuration

The EUT was tested per the guidance of KDB 842590 D01 v01r02 and ANSI C63.26-2015. See Section 7.0 of this test report for a description of the radiated tests.

EIRP Simulation data for all Beam IDs was used to help determine the worst case Beam ID for SISO operation and Beam ID pair for 2Tx (DFT-s-OFDM) and MIMO (CP-OFDM) operation. Several additional Beam ID's were also investigated to determine the Beam ID's producing the highest measured EIRP.

All testing was performed using FTM (Factory Test Mode) software at continuous Tx operation. When implemented out in the field, the EUT will operate with a maximum uplink configuration as allowed by the 5G network/carrier. The FTM software was also used for the EUT operation in the EN-DC mode.

While operating in the FR2 band, this device supports anchor band operation with either an LTE carrier or an NR FR1 carrier. Both were investigated during FR2 measurements.

This device supports two configurations: one is with screen open and one is with screen closed. Open, half opened and closed configurations are tested, and the worst case radiated emissions data is shown in this report.

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Page 8 of 248	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset		
			V1.0	



### 2.4 Software and Firmware

The test was conducted with firmware version FAS0\_F936UFAU0AVD5 installed on the EUT.

### 2.5 EMI Suppression Device(s)/Modifications

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

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 0 of 249	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 9 of 248	
			V1.0	



# 3.0 DESCRIPTION OF TESTS

### 3.1 Measurement Procedure

The measurement procedures described in the document titled "American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services" (ANSI C63.26-2015) and the guidance provided in KDB 842590 D01 v01r02 were used in the measurement of the EUT.

# 3.2 Radiated Power and Radiated Spurious Emissions §30.202, §30.203

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary for radiated emissions measurements in the spurious domain. 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 for measurements above 1GHz.

Radiated power (EIRP) measurements were performed in a full anechoic chamber (FAC) conforming to the site validation requirements of CISPR 16-1-4. Radiated spurious emission measurements from 30MHz - 18GHz were performed in a semi anechoic chamber (SAC) conforming to the site validation requirements of CISPR 16-1-4. A positioner was used to manipulate the EUT through several positions in space by rotating about the roll axis as shown in the figure below. The positioner was mounted on top of a turntable bringing the total EUT height to 1.5m.

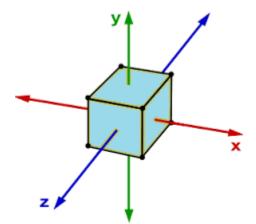


Figure 3-1. Rotation of the EUT Through Three Orthogonal Planes

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 10 of 248	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Faye 10 01 240	
			V1.0	



The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable. The measurement antenna is in the far field of the EUT per formula  $2D^2/\lambda$  where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, "D" is the largest dimension of the measurement antenna. The EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

Frequency Range (GHz)	Wavelength(cm)	Far Field Distance (m)	Measurement Distance (m)
18-40	0.749	0.54	1.00
40-60	0.500	1.39	1.50
60-90	0.333	0.91	1.00
90-140	0.214	0.58	1.00
140-200	0.150	0.39	1.00

#### Table 3-1. Far-Field Distance & Measurment Distance per Frequency Range

Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst case polarization/positioning. It was determined that H=0 degree and V=90 degree are the worst case positions when the EUT was transmitting horizontally and vertically polarized beams, respectively.

The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration bandwidth set to the emissions' occupied bandwidth. The EIRP is calculated from the raw power level measured with the spectrum analyzer using the formulas shown below.

### Effective Isotropic Radiated Power Sample Calculation

The measured e.i.r.p is converted to E-field in V/m. Then, the distance correction is applied before converting back to calculated e.i.r.p, as explained in KDB 971168 D01.

Field Strength [dB $\mu$ V/m]	= Measured Value [dBm] + AFCL [dB/m] + 107	
	= - 32.74 dBm + (40.7dB/m + 8.78dB) + 107 = 123.74dBuV/m	
	= 10^(123.74/20)/1000000 = 1.54 V/m	
e.i.r.p. [dBm]	= 10 * log((E-Field*D <sub>m</sub> )^2/30) + 30dB	
	= 10*log((1.54V/m * 1.00m)^2/30) + 30dB	
	= 18.98 dBm e.i.r.p.	

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 11 of 248	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Faye IT 01240	
			V1.0	



# 4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. 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	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 12 of 249	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 12 of 248	
			V1.0	



# 5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to an accredited ISO/IEC 17025 calibration facility. 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
-	ETS-001	EMC Cable and Switch System	12/9/2021	Annual	12/9/2022	ETS
-	ETS-002	EMC Cable and Switch System	3/10/2022	Annual	3/10/2023	ETS
EMCO	3115	Horn Antenna (1-18GHz)	6/18/2020	Biennial	6/18/2022	9704-5182
ESPEC	SH-241	Temperature Chamber	7/2/2020	Biennial	7/2/2022	92002873
ETS-Lindgren	3116C	DRG Horn Antenna	5/11/2021	Biennial	5/11/2023	218893
ETS-Lindgren	3117	1-18 GHz DRG Horn (Medium)	4/20/2021	Biennial	4/20/2023	00125518
Keysight Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	7/21/2021	Annual	7/21/2022	MY49430494
MEGAPHASE	FAC mmWave	AP FAC mmWave 40GHz	8/18/2021	Annual	8/18/2022	20033003
Narda	180-442-KF	Wide Band Horn Antenna	9/14/2020	Biennial	9/14/2022	2172481
Narda	180-422-KF	Horn (Small)	11/5/2020	Biennial	11/5/2022	U157403-01
OML, Inc.	M05RH	WR-05 Horn Antenna, 24dBi, 140 to 220 GHz	9/24/2020	Biennial	9/24/2022	18073001
OML, Inc.	M08RH	WR-08 Horn Antenna, 24dBi, 90 to 140 GHz	10/22/2020	Biennial	10/22/2022	18073001
OML, Inc.	M12RH	WR-12 Horn Antenna, 24dBi, 60 to 90 GHz	8/12/2020	Biennial	8/12/2022	18073001
OML, Inc.	M19RH	WR-19 Horn Antenna, 24dBi, 40 to 60 GHz	8/28/2020	Biennial	8/28/2022	18073001
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/25/2021	Annual	8/25/2022	1312.8000K67
Rohde & Schwarz	FSW26	Signal Analzyer	2/2/2022	Annual	2/2/2023	101604
Rohde & Schwarz	FSW26	2Hz-26.5GHz Signal and spectrum analyzer	4/14/2022	Annual	4/14/2023	103187
Sunol Sciences	JB5	Bi-Log Antenna (30M-5GHz)	7/27/2020	Biennial	7/27/2022	A051107
UTiFlex	UTiFlex	FAC mmWave UTiFlex 40GHz	3/9/2022	Annual	3/9/2023	232062-001
UTiFlex	UTiFlex	FAC mmWave UTiFlex 40GHz	3/9/2022	Annual	3/9/2023	234142-001
Virginia Diodes, Inc.	SAX679	SAX Module (40 - 60GHz)	8/28/2020	Biennial	8/28/2022	SAX679
Virginia Diodes, Inc.	SAX680	SAX Module (60 - 90GHz)	8/14/2020	Biennial	8/14/2022	SAX680
Virginia Diodes, Inc.	SAX681	SAX Module (90 - 140GHz)	10/22/2020	Biennial	10/22/2022	SAX681
Virginia Diodes, Inc.	SAX682	SAX Module (140 - 220GHz)	9/24/2020	Biennial	9/24/2022	SAX682

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.

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 13 of 248	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Faye 13 01 240	
			V1.0	



# 6.0 SAMPLE CALCULATIONS

### **Emission Designator**

#### **π/2 BPSK/ QPSK Modulation**

#### Emission Designator = 800MG7D

BW = 800 MHz

- G = Phase Modulation
- 7 = Quantized/Digital Info
- D = Data transmission, telemetry, telecommand

#### **QAM Modulation**

#### Emission Designator = 802MW7D

BW = 802 MHz W = Amplitude/Angle Modulated 7 = Quantized/Digital Info D = Data transmission, telemetry, telecommand

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 14 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 14 of 248
			V1.0



# 7.0 TEST RESULTS

### 7.1 Summary

Company Name:	Samsung Electronics Co., Ltd.
FCC ID:	A3LSMF936U
FCC Classification:	Part 30 Mobile Transmitter (5GM)
Mode(s):	<u>TDD</u>

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A		PASS	Section 7.2
2.1046, 30.202	Equivalent Isotropic Radiated Power	43dBm		PASS	Section 7.3
2.1051, 30.203	Spurious Emissions	-13dBm/MHz for all out-of-band emissions	RADIATED	PASS	Section 7.4
2.1051, 30.203	Out-of-Band Emissions at the Band Edge	-13dBm/MHz for all out-of- band emissions, -5dBm/MHz from the band edge up to 10% of the channel BW		PASS	Section 7.5
2.1055	Frequency Stability	Fundamental emissions stay within authorized frequency block		PASS	Section 7.6

Table 7-1. Summary of Radiated Test Results

#### Notes:

- 1) All modes of operation and modulations were investigated. The test results shown in the following sections represent the worst case emissions.
- This report contains references to "n258-R1" and "n258-R2". These correspond to n258 Range 1, operating from 24.25 - 24.45GHz, and n258 Range 2, operating from 24.75 - 25.25GHz, respectively, as defined in Part 30.4(a).
- 3) Per 2.1057(a)(2), spurious emissions were investigated up to 100GHz for n258-R1, n258-R2 and n261. For n260, spurious emissions were investigated up to 200GHz.
- 4) The radiated RF output power and all out-of-band emissions in the spurious domain are evaluated to the EIRP limits.
- 5) "CC" refers to "Component Carriers".
- 6) Beam IDs were chosen based on which Beam ID produces the highest EIRP during EIRP simulation.
- 7) All testing was performed using FTM (Factory Test Mode) software at continuous Tx operation (100% duty cycle).
- 8) The CP-OFDM and DFT-s-OFDM transmission schemes were investigated fully for each test type and only the worst case data is included.

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 15 of 240		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 15 of 248		
		-	V1.0		



# 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.

#### Test Procedure Used

ANSI C63.26-2015 Section 5.4.3 KDB 842590 D01 v01r02 Section 4.3

#### **Test Settings**

- 1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied 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  $\geq$  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 Notes**

- 1. The EUT supports CP-OFDM and DFT-s-OFDM. OBW was measured for both waveforms and the worst case has been included in the report.
- Due to similar antenna performance from both patch antennas, the Occupied Bandwidth was only measured on one antenna (Ant 1 – J-Patch) for each band.

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 16 of 248		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Fage 10 01 240		
			\/1.0		



# Band n258-R1

Channel	Bandwidth	CCs Active	Transmission Scheme	Modulation	OBW [MHz]
			CP-OFDM	QPSK	46.29
		1	DFT-s-OFDM	π/2-BPSK	46.36
		T	CP-OFDM	16QAM	46.30
	50		CP-OFDM	64QAM	46.60
	50	2	CP-OFDM	QPSK	95.78
			DFT-s-OFDM	π/2-BPSK	95.57
			CP-OFDM	16QAM	95.64
Mid			CP-OFDM	64QAM	95.77
ivilu		1	CP-OFDM	QPSK	95.16
			DFT-s-OFDM	π/2-BPSK	91.88
		1	CP-OFDM	16QAM	95.22
	100		CP-OFDM	64QAM	95.92
	100		CP-OFDM	QPSK	197.31
		2	DFT-s-OFDM	π/2-BPSK	193.23
		2	CP-OFDM	16QAM	196.23
			CP-OFDM	64QAM	194.84

Table 7-2. Summary of Occupied Bandwidths (n258-R1)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 17 of 248		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 17 01 246		
			V1.0		





Plot 7-1. Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)



Plot 7-2. Occupied Bandwidth Plot (50MHz-1CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 40 at 040		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 18 of 248		
	•		V1.0		



Keysight Spectrum Analyzer - Occupied B						
RLT RF 50Ω DC	CORREC	SENSE:INT enter Freq: 24.34992	ALIGN AUT		06:26:30 PM May 11, 2022 Radio Std: None	Trace/Detector
PREAMP	T T	rig: Free Run Atten: 24 dB	Avg Hold:>10		Radio Device: BTS	
PREAMP	#IFGaIn:Low #/	Atten: 24 db			Radio Device. D13	r -
0 dB/div Ref 40.00 dB	22					
og						
0.0						Clear Wri
0.0		- 14				cicui mi
0.0	Current of the	and the second second				
00				N.		Avera
00				weighter	يريد و مرافقه	Avera
					and a second of the second	
).0						
0.0						Max Ho
).0						
0.0						
enter 24.34992 GHz					Onen 100 0 Mille	Min Ho
Res BW 1 MHz		VBW 8 MHz			Span 100.0 MHz Sweep 1 ms	
					-	Detect
Occupied Bandwid		Total Pow	er 32	2.6 dBm		Pea
4	6.300 MHz					Auto <u>M</u>
Transmit Freq Error	-55.724 kHz	% of OBW	Power	99.00 %		
x dB Bandwidth	54.02 MHz	x dB		6.00 dB		
	54.02 WINZ	хuв	-2	0.00 UB		
3				STATUS		

Plot 7-3. Occupied Bandwidth Plot (50MHz-1CC – 16QAM – Mid Channel)



Plot 7-4. Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dama 40 - 6040	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 19 of 248	
	•		V1.0	



Keysight Spectrum Analyzer - Occupied BW		anuas tur		A4 15 85 81111 11 8488	
CRLT RF 50Ω DC		SENSE:INT Center Freq: 24.34998000		06:45:35 PM May 11, 2022 Radio Std: None	Trace/Detector
PREAMP		Trig: Free Run A #Atten: 18 dB	vg Hold:>100/100	Radio Device: BTS	
10 dB/div Ref 40.00 dBr	n				
30.0					
20.0					Clear Writ
10.0	manuthe	m	$\sim$		
J.00		V			•
					Averag
10.0 <b></b>				Andrice Breathing and Annals	
30.0					Max Hol
					INIAX FIOI
40.0					
50.0					Min Hol
Center 24.3500 GHz				Span 200.0 MHz	MITTO
Res BW 2 MHz		VBW 50 MHz		Sweep 1 ms	
Occupied Bandwidt	h	Total Power	32.0 di	Bm	Detecto Peak
95	5.779 MHz				Auto <u>Ma</u>
Transmit Freq Error	-245.13 kHz	% of OBW Pc	ower 99.00	0/	
x dB Bandwidth	106.4 MHz	x dB	-26.00	αB	
6G			STATU	s	

Plot 7-5. Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



Plot 7-6. Occupied Bandwidth Plot (50MHz-2CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 20 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 20 of 248
	•	÷	V1.0



Keysight Spectrum Ana				1								-	- •
R L T RF	50 Ω	DC C	ORREC			eq: 24.3499	80000 GHz	N AUTO		Radio Sto	PM May 11, 2022	Trace	/Detector
PREA	MP		#IFGai	n:Low 두	Trig: Fre #Atten: 1		Avg Hold	l:>100/	/100	Radio De	vice: BTS		
			in our	LOW									
0 dB/div Re	f 30.00 (	dBm											
og													
0.0			1	min	m	man m	mm	~~				с	lear Writ
0.0			4		- 4. F	<u></u>		\ 					
).00		}				<u>v</u>			{				
0.0	had man and the state	hand							Lung	dry all have a	manula		Averag
0.0													
0.0													
0.0													Max Ho
0.0													
0.0													
													Min Ho
enter 24.3500							_				200.0 MHz		
Res BW 2 MH	Z				VB	W 50 MH	Z			SV	veep 1ms		
Occupied	Bandw	vidth			Т	otal Pow	er	31.	0 dB	m			Detect
		95.	643	MHz	Z							Auto	Ma
Transmit Fr				.77 kH		of OBW	Power	<b>0</b>	9.00	9/_			
x dB Bandw	nenn		101	1.4 MH	z x	dB		-26	i.00 d	В			
iG									STATUS				

Plot 7-7. Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)



Plot 7-8. Occupied Bandwidth Plot (50MHz-2CC - 64QAM - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dega 21 of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 21 of 248		
		· · · · · · · · · · · · · · · · · · ·	V1.0		



Keysight Spectrum Analyzer - Occupied BV RLT RF 50 Ω DC	CORREC	SENSE:INT	ALIGN AUTO	06:29:50 PM May 11, 2022	
KET KP 50.52 DC	C C	enter Freq: 24.349920000 GI	lz	Radio Std: None	Trace/Detector
DDEAMD		rig: Free Run Avg l Atten: 24 dB	lold:>100/100	Radio Device: BTS	
PREAMP	#IFGaIn:Low #	Atten: 24 db		Radio Device. D 13	
0 dB/div Ref 40.00 dBr	n				
0.0					
					Clear Wri
).0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mm mmm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
0.0					
00	/		A		Avera
mary mary and and marker of the			·····	hundre and some the transments	, Arona
).0					
0.0					Max Ho
0.0					
					Min Ho
enter 24.3499 GHz				Span 200.0 MHz	
Res BW 2 MHz		VBW 50 MHz		Sweep 1 ms	
Occurried Developide	(J.,	Total Power	34.1 dl	Pm	Detect
Occupied Bandwid		Total Fower	54. I UI	DIII	Pea Auto M
9	5.159 MHz				Auto
Transmit Freq Error	191.74 kHz	% of OBW Powe	er 99.00	0 %	
x dB Bandwidth	186.3 MHz	x dB	-26.00	dD	
	100.3 WITZ	X UD	-20.00	ub	
3			STATU	IS	

Plot 7-9. Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)



Plot 7-10. Occupied Bandwidth Plot (100MHz-1CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dega 22 of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 22 of 248		
		· · · · · · · · · · · · · · · · · · ·	V1.0		



RLT R	Analyzer - Occup F 50 Ω		CORREC		SENSE:I			N AUTO		06:30:03	PM May 11, 2022	-	
						eq: 24.3499	20000 GHz			Radio Std	: None	Trace	e/Detector
DE				, ¢	Trig: Free #Atten: 24		Avg Hold	1:>100/	100	Radio Dev	ion BTS		
PH	EAMP		#IFGai	n:Low	#Atten: 24	uD				Radio Dev	ICE. BIS		
	Ref 40.00	dBm											
pg													
).0													lear Wri
0.0													
			ma	m	$\sim$	Mar March	mm	many					
0.0			<b>í</b> — —										
00									\				A
and the first of the	والمحادث والمساور والمحاوم	-							An other	and and a second	unou table of a solid s		Avera
0.0			$\vdash$										
.0													MaxHo
1.0			$\vdash$										
0.0													
enter 24.34										Enon	200.0 MHz		Min Ho
Res BW 2 N					VB	V 50 MH	7			Shall	zeep 1 ms		
	1112				VD V	V 30 WIII	2			3%	eep mis		
Occupie	d Bandy	vidth			Тс	tal Pow	er	33	1 dBr	n			Detect
Occupie	u Danuv						01	001				Auto	Pea
		95.	.217	MHz								Auto	M
Transmit	Erea Erra	NF.	2/18	.01 kHz	. 0/	of OBW	Power	0	9.00 9	0/_			
x dB Band	lwidth		195	5.4 MHz	z x	dB		-26	.00 d	В			
									STATUS				

Plot 7-11. Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)



Plot 7-12. Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dage 22 of 249		
1M2204010046-01.A3L	046-01.A3L 4/18 – 6/14/2022 Portable Handset		Page 23 of 248		
		·	V1.0		



Keysight Spectrum Analyzer - Occupied BV RLT RF 50 Ω DC	V CORREC	SENSE:INT	ALIGN AUTO	06:41:28 PM May 11, 2022	
KLI KF SUS2 DC		Center Freq: 24.349980000 0	GHz	Radio Std: None	Trace/Detector
PREAMP		Trig: Free Run Avg #Atten: 24 dB	Hold:>100/100	Radio Device: BTS	
PREAMP	#IFGaIn:Low	Atten: 24 dD		Radio Device. D 13	
0 dB/div Ref 40.00 dB					
30.0					Clear Writ
20.0					Clear writ
	rennon	my portione	monte		
10.0		Y			
00. CO				white the completion and the state of the	Averaç
20.0					
0.0					Max Ho
0.0					
50.0					
enter 24.3500 GHz				Span 400.0 MHz	Min Ho
es BW 3 MHz		VBW 50 MHz		Sweep 1 ms	
		<b>T</b> ( ) <b>D</b>	00.7.15		Detect
Occupied Bandwid		Total Power	32.7 dE	sm	Peal
1	97.31 MHz				Auto <u>Ma</u>
Transmit Freq Error	263.80 kHz	% of OBW Pow	ver 99.00	%	
x dB Bandwidth	400.0 MHz	x dB	-26.00 (		
X dB Bandwidth	400.0 MHZ	хав	-20.00 0	0B)	
G			STATUS	3	

Plot 7-13. Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)

eysight Spectrum Analyzer - RLT RF 5		000050	or working the		UTO	00.04.75		
RLT RF 5	0Ω DC	CORREC	SENSE:INT Center Freq: 24.3499	ALIGN A	010	06:34:45 Radio Std:	PM May 11, 2022	Trace/Detecto
			Trig: Free Run	Avg Hold:>	100/100	ituaio ota.		
PREAMP		#IFGain:Low	#Atten: 24 dB			Radio Dev	ice: BTS	
dB/div Ref 40	).00 dBm							
0								
								Clear Wr
0		man	A	man	$\sim$			
o					· \			
			N/		Į			
			V		hanne	manundan		Avera
	a structure of the state of the					and the second second	and the state of the	
0								
0								Max H
0								
0								
0								
								Min He
nter 24.3500 GH	z						400.0 MHz	
sBW/3MHz			VBW 50 MH	z		Sw	eep 1 ms	
								Detec
Occupied Ba	ndwidt	า	Total Pov	ver	34.0 dBr	n		Pe
	19	3.23 MHz						Auto <u>N</u>
		0.20 MIT						
Transmit Freq I	rror	-1.2333 MHz	% of OBW	Power	99.00	%		
k dB Bandwidt	ו	400.0 MHz	x dB		-26.00 d	В		
					STATUS			

Plot 7-14. Occupied Bandwidth Plot (100MHz-2CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dega 04 of 049		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 24 of 248		
		·	V1.0		



Keysight Spectrum Analyzer - Occupied BW RLT RF 50 Ω DC	CORREC	SENSE:INT	ALIGN AUTO	06:42:38	PM May 11, 2022	
N 5032 DC	CONNEC	Center Freq: 24.34998000	0 GHz	Radio Std:		Trace/Detector
PREAMP	#IFGain:Low	Trig: Free Run A #Atten: 22 dB	vg Hold:>100/10	0 Radio Dev	ion: BTS	
PREAMP	#IFGain:Low	#Atten: 22 db		Radio Dev	ICE. DTS	
dB/div Ref 30.00 dBn	n <u>,                                     </u>					
,g .0						
	mmm	men relimination	mention			Clear Wr
.0	1000 000 000 00					
0 homenousles and the second second	1		L. L.	human human has been as the second	Manglini, Marana	
						Avera
0.0						
.0						
						Max Ho
.0						
.0						
						Min Ho
enter 24.3500 GHz es BW 3 MHz		VBW 50 MHz			400.0 MHz eep 1 ms	
		VBW JUWHZ		3₩	eep mis	
Occupied Bandwidt	h	Total Power	31.5	dBm		Detec
	6.23 MHz					Auto M
R						_
Transmit Freq Error	184.36 kHz	% of OBW Po	ower 99.	00 %		
x dB Bandwidth	400.0 MHz	x dB	-26.0			
	400.0 MHZ	X UD	-20.0			
1			ST/	ATUS		

Plot 7-15. Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)



Plot 7-16. Occupied Bandwidth Plot (100MHz-2CC - 64QAM - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dego 25 of 249		
1M2204010046-01.A3L	046-01.A3L 4/18 – 6/14/2022 Portable Handset		Page 25 of 248		
•	•	·	V1.0		



# Band n258-R2

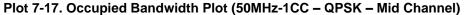
Channel	Bandwidth	CCs Active	Transmission Scheme	Modulation	OBW [MHz]
		1	CP-OFDM	QPSK	46.17
			DFT-s-OFDM	π/2-BPSK	46.00
		T	CP-OFDM	16QAM	46.04
	50		CP-OFDM	64QAM	46.10
	50	2	CP-OFDM	QPSK	96.45
			DFT-s-OFDM	π/2-BPSK	96.31
			CP-OFDM	16QAM	96.26
Mid			CP-OFDM	64QAM	97.12
iviiu			CP-OFDM	QPSK	95.04
		1	DFT-s-OFDM	π/2-BPSK	92.27
			CP-OFDM	16QAM	94.71
	100		CP-OFDM	64QAM	94.68
	100		CP-OFDM	QPSK	197.47
		2	DFT-s-OFDM	π/2-BPSK	192.85
		2	CP-OFDM	16QAM	199.21
			CP-OFDM	64QAM	194.72

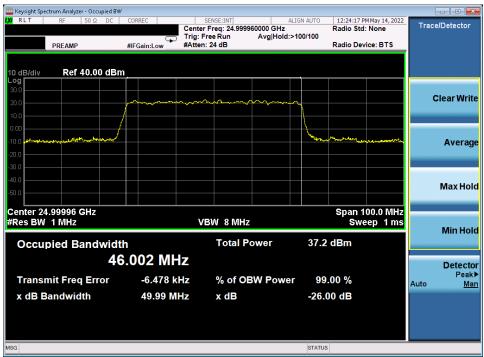
Table 7-3. Summary of Occupied Bandwidths (n258-R2)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Technical Manager Page 26 of 248	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 26 of 248	
			V1.0	





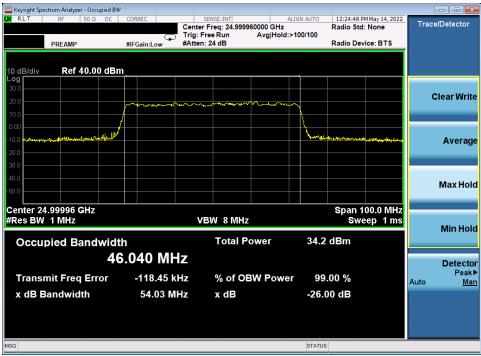




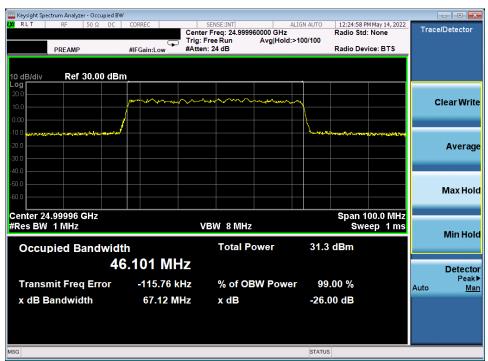
Plot 7-18. Occupied Bandwidth Plot (50MHz-1CC – pi/2-BPSK – Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 07 of 049
1M2204010046-01.A3L			Page 27 of 248
		÷	V1.0





Plot 7-19. Occupied Bandwidth Plot (50MHz-1CC - 16QAM - Mid Channel)

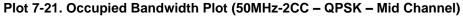


Plot 7-20. Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N: Test Dates:		EUT Type:	Dega 20 of 249	
1M2204010046-01.A3L			Page 28 of 248	
		÷	V1.0	



www.commanalyzer - Occupied BW						
LX/RLT RF 50Ω DC	CORREC	SENSE:INT Center Freq: 24.9999	ALIGN .	AUTO 12:27:12 P Radio Std	M May 14, 2022 : None	Trace/Detector
PREAMP	#IFGain:Low	Trig: Free Run #Atten: 24 dB	Avg Hold:>100	/100 Radio Dev	rice: BTS	
10 dB/div Ref 40.00 dBm						
Log 30.0 20.0						Clear Write
10.0			·····			
-10.0				manumum	Jones and the second second	Average
-20.0						
-40.0						Max Hold
Center 24.9999 GHz					00.0 MHz	
#Res BW 2 MHz		VBW 50 MH	2	SWe	eep 1 ms	Min Hold
Occupied Bandwidt	h	Total Po	ower	35.0 dBm		
96	.450 MH	Z				Detecto
Transmit Freq Error	-57.640 kl	Hz % of OE	W Power	99.00 %		Peak Auto Mar
x dB Bandwidth	165.4 MI	Hz x dB		-26.00 dB		
MSG				STATUS		

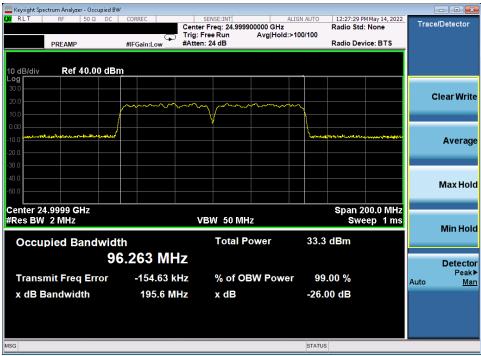




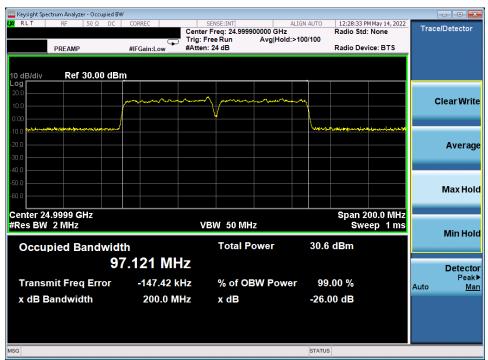
Plot 7-22. Occupied Bandwidth Plot (50MHz-2CC – pi/2-BPSK – Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 20 of 249	
1M2204010046-01.A3L			Page 29 of 248	
			V1.0	





Plot 7-23. Occupied Bandwidth Plot (50MHz-2CC - 16QAM - Mid Channel)



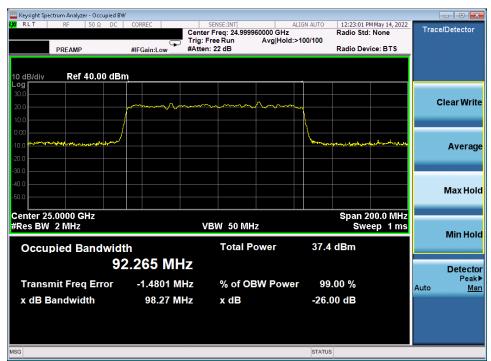
Plot 7-24. Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)

FCC ID: A3LSMF936U	FCC ID: A3LSMF936U MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:			Dogo 20 of 249		
1M2204010046-01.A3L			Page 30 of 248		
	•		V1.0		



🔤 Keysight Spectrum Anal													- • ×
LXIRLT RF	50 Ω	DC	CORREC			NSE:INT	960000 GHz	ALIGN	AUTO	12:21:15 P Radio Std	M May 14, 2022	Trac	e/Detector
					Trig: Fre		Avg Hold:	>100	/100	Raulo Stu	. None		
PREAM	IP		#IFGain:	low 📕	#Atten: 1	8 dB				Radio Dev	ice: BTS		
10 dB/div Re	f 40.00	dBm											
Log													
30.0													
20.0			June -	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	***	minutum	m					Clear Write
10.0		/											
0.00		/							\				
-10.0 Martinether	We want	and a							Magnificant	lastered	manna		Average
-20.0													Average
-30.0													
-40.0													Max Hold
-50.0													maxmona
Center 25.0000	<u></u>									Enon 1			
#Res BW 2 MH					VB	W 50 MI	7			Shan z	00.0 MHz ep 1 ms		
WINCS DWY Z IVIIII	4				VD.	99 JO 1911	12			0.44	cp mis		Min Hold
Occupied I	Bandy	vidt	h			Total F	ower		35.4	dBm			
o o o o o o o o o o o o o o o o o o o	Ballar				-								
		90	.040	IVIE	Z								Detector
Transmit Fre	a Erro	r	-160	).00 k	Hz	% of Q	BW Powe	er	99	.00 %			Peak▶
												Auto	Man
x dB Bandw	idth		14	4.9 M	HZ	x dB			-26.0	00 dB			
MSG									STATUS				
		-						-					

Plot 7-25. Occupied Bandwidth Plot (100MHz-1CC - QPSK - Mid Channel)



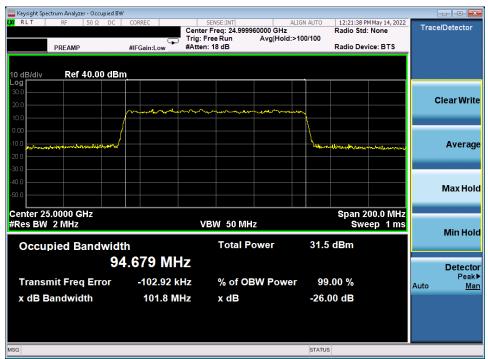
Plot 7-26. Occupied Bandwidth Plot (100MHz-1CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Report S/N: Test Dates: EUT Type:		Dego 21 of 249			
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 31 of 248			
	•	•	V1.0			



www.com analyzer - Oc												- • •
LXI RLT RF 50 S	2 DC	CORREC			NSE:INT req: 24.9999	60000 GHz	ALIGN	AUTO	12:21:26 P	May 14, 2022 None	Trac	e/Detector
PREAMP		#IFGain:	- Low	Trig: Fre #Atten: 1		Avg Hold	:>100	0/100	Radio Dev	ice: BTS		
		an oum	2011									
10 dB/div Ref 40.0	0 dBm											
Log 30.0												
20.0			an and a second	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			<b>~</b>				(	Clear Write
10.0	+{											
0.00								<u>}</u>				
-10.0	la and a start of the							Veryant	منهروانهاها والمحاط	healthangladista		Average
-20.0												
-40.0												
-50.0												Max Hold
Center 25.0000 GHz									Enon 3	00.0 MHz		
#Res BW 2 MHz				VB	W 50 MH	z				ep 1 ms		
					Total P			34.4	dDue			Min Hold
Occupied Band					TOLAT	ower		34.4	аыш			
	94	.711	MF	IZ								Detector
Transmit Freq Er	ror	-21	7.41 k	Hz	% of O	<b>BW Powe</b>	ər	<b>99</b> .	00 %		Auto	Peak▶ Man
x dB Bandwidth		11	3.8 M	Hz	x dB			-26.0	0 dB			
MSG								STATUS				

Plot 7-27. Occupied Bandwidth Plot (100MHz-1CC - 16QAM - Mid Channel)



Plot 7-28. Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	S/N: Test Dates: EUT Type:		Dega 22 of 249			
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 32 of 248			
-	-	·	V1.0			



Keysight Spectrum Analyze	r - Occupied BV	v									
RLT RF	50 Ω DC	CORREC		SENSE:INT		ALIGN A	UTO		M May 14, 2022	Trac	e/Detector
				r Freq: 24.99				Radio Std: None		mac	erDetector
				Free Run	Avg Hold	1:>100/1	100				
PREAMP		#IFGain:Low	#Atter	n: 24 dB				Radio Dev	rice: BTS		
0 dB/div Ref 4	10.00 dBi	m									
0.0											
0.0											Clear Wri
0.0					no have						
nn		per and a strain	A	and have been a	Pro Concerter						
				V							
.00							and .	and board warm			
	*********										Avera
0.0											
0.0											
10											
											Max Ho
0.0											
enter 24.9999 Gl	Hz								00.0 MHz		
es BW 3 MHz			\ \	BW 50 M	Hz			Swe	eep 1 ms		
											Min Ho
Occupied Ba	andwid	th		Total	ower		33.9	dBm			
occupica De											
	1	97.47 🛛	ИНZ								Detect
											Peal
<b>Transmit Freq</b>	Error	-24.32	5 kHz	% of C	BW Pow	er	99.	00 %		Auto	rea M
										Auto	IVI
x dB Bandwid	th	400.0	) MHz	x dB			-26.0	00 dB			
3							STATUS				

Plot 7-29. Occupied Bandwidth Plot (100MHz-2CC - QPSK - Mid Channel)



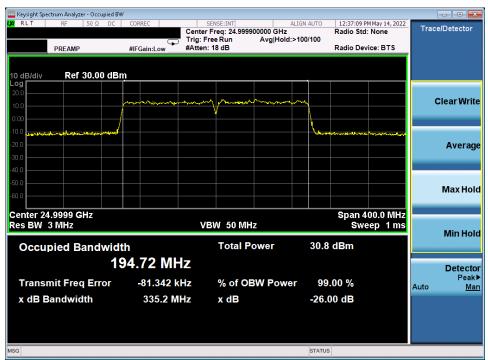
Plot 7-30. Occupied Bandwidth Plot (100MHz-2CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Dega 22 of 249			
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 33 of 248			
	•		V1.0			



🚾 Keysight Spectrur													
LXI RLT	RF 50 9	DC DC	CORREC			NSE:INT		ALIGN A	UTO	12:36:29 P Radio Std	M May 14, 2022	Trac	e/Detector
PI	PREAMP #IFGain:Low		- - -	Center Freq: 24.999900000 GHz Trig: Free Run Avg Hold:>100 #Atten: 24 dB		:>100/							
			#ir Gain			ub				rtudio Dei			
	D-6.40												
10 dB/div Log	Ref 40.0	ло аві	n – – – – – – – – – – – – – – – – – – –										
30.0													
20.0													Clear Write
10.0			have	~~~~~~	manner	from the second	Maran and Andrews	- haven					
0.00		+						<u> </u>	l				
-10.0	****	donume!							V	enerthe enderedite	entre harren		Average
-20.0													
-30.0													
-40.0													
-50.0													Max Hold
												-	
Center 24.99										Span 4	00.0 MHz		
Res BW 3 N	IIIZ				VВ	W 50 M	HZ			SW	eep 1 ms		Min Hold
Occupie	ed Band	dwid	th			Total F	ower		32.7	dBm			
Coccupit	ba Ban				I								
			99.2′		12								Detector
Transmit	t Freq Er	ror	29	1.28 k	Hz	% of O	BW Powe	ər	99	.00 %		Auto	Peak▶ Man
x dB Ban			10	00.0 M	H7	x dB			-26 (	)0 dB		Auto	Mail
	awada		4	50.0 IVI	11/2	x ub			-20.0				
MSG									STATUS				
									011100				

Plot 7-31. Occupied Bandwidth Plot (100MHz-2CC - 16QAM - Mid Channel)



Plot 7-32. Occupied Bandwidth Plot (100MHz-2CC - 64QAM - Mid Channel)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 24 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 34 of 248
		÷	V1.0



# Band n261

Channel	Bandwidth	CCs Active	Transmission Scheme	Modulation	OBW [MHz]
	50	1	CP-OFDM	QPSK	46.20
			DFT-s-OFDM	π/2-BPSK	46.12
			CP-OFDM	16QAM	46.00
			CP-OFDM	64QAM	45.93
	50	2	CP-OFDM	QPSK	95.63
			DFT-s-OFDM	π/2-BPSK	95.77
			CP-OFDM	16QAM	95.71
Mid			CP-OFDM	64QAM	96.01
iviiu		1	CP-OFDM	QPSK	94.85
			DFT-s-OFDM	π/2-BPSK	92.13
			CP-OFDM	16QAM	92.13 94.81
	100		CP-OFDM	64QAM	94.85
	100	2	CP-OFDM	QPSK	194.04
			DFT-s-OFDM	π/2-BPSK	191.65
			CP-OFDM	16QAM	194.14
			CP-OFDM	64QAM	193.91

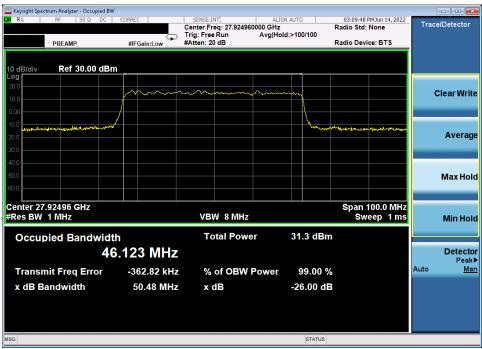
Table 7-4. Summary of Occupied Bandwidths (n261)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 25 of 249	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 35 of 248	
			V1.0	



Keysight Spectrum Analyzer - Occupied BW					
RL RF 50 Ω DC		SENSE:INT Center Freq: 27.92496 Trig: Free Run #Atten: 20 dB	ALIGN AUTO 0000 GHz Avg Hold:>100/100	03:22:20 PM Jun 14, 2022 Radio Std: None Radio Device: BTS	Trace/Detector
0 dB/div Ref 30.00 dBn	1				
20.0	m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-burthon - man		Clear Writ
0.0 <b>1</b> 00 <b>1</b> 000 <b>1</b> 00 <b></b>				Paralantinent Anna and anna anna anna anna anna anna	Averaç
0.0					Max Ho
enter 27.92496 GHz Res BW 1 MHz		VBW 8 MHz		Span 100.0 MHz Sweep 1 ms	Min Ho
Occupied Bandwidt	<sup>h</sup> 6.198 MHz	Total Powe	er 29.3 d	IBm	Detect Peal
Transmit Freq Error	-441.70 kHz	% of OBW	Power 99.0	0 %	Auto <u>M</u>
x dB Bandwidth	88.34 MHz	x dB	-26.00	) dB	
3			STA	TUS	

Plot 7-33. Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)



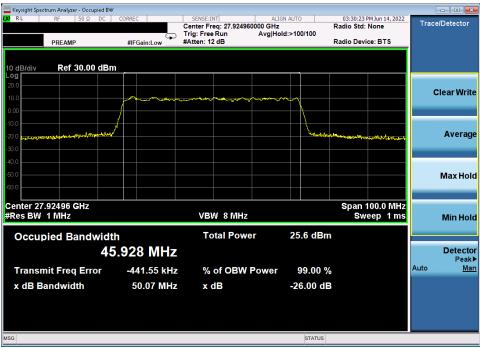
Plot 7-34. Occupied Bandwidth Plot (50MHz-1CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 26 of 249	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 36 of 248	
	•	-	V1.0	



Keysight Spectrum Analyzer - Occupied BW					
RL RF 50 Ω DC		SENSE:INT Center Freq: 27.92496 Trig: Free Run #Atten: 20 dB	ALIGN AUTO 0000 GHz Avg Hold:>100/100	03:23:03 PM Jun 14, 2022 Radio Std: None Radio Device: BTS	Trace/Detector
0 dB/div <b>Ref 30.00 dBn</b> ∘g	1				
10.0	/	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mann		Clear Writ
0.0 				hand a strategy and a strategy and and	Avera
0.0					Max Ho
enter 27.92496 GHz Res BW 1 MHz		VBW 8 MHz		Span 100.0 MHz Sweep 1 ms	Min Ho
Occupied Bandwidt	<sup>h</sup> 5.003 MHz	Total Powe	er 28.6 d		Detect Pea
Transmit Freq Error	-458.34 kHz	% of OBW	Power 99.0	0 %	Auto <u>M</u>
x dB Bandwidth	52.36 MHz	x dB	-26.00	dB	
3			STAT	US	

Plot 7-35. Occupied Bandwidth Plot (50MHz-1CC - 16QAM - Mid Channel)



Plot 7-36. Occupied Bandwidth Plot (50MHz-1CC - 64QAM - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dara 07 at 040		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 37 of 248		
		·	V1.0		



Keysight Spectrum Analyzer - Occupied BW								
RL RF 50 Ω DC				AUTO	Radio Std		Trace/D	etector
PREAMP	#IFGain:Low	#Atten: 14 dB			Radio Dev	vice: BTS		
odB/div Ref 30.00 dBn	<u>n</u>							
0.0							Clo	ar Wri
.0	mannon	man men	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~			Cle	
00		¥						
0	/			the second	manughue	-		Avera
								Avera
.0								
.0							M	lax Ho
.0								
						000 0 8411-		
enter 27.9250 GHz Res BW 2 MHz		VBW 50 MI	Iz			200.0 MHz veep 1 ms	N	/lin Ho
Occupied Bandwidt		Total Pow	/er	27.8 dI	3m			
95	5.632 MHz							Detec Pea
Transmit Freq Error	-392.14 kHz	% of OBW	Power	99.00	%		Auto	M
x dB Bandwidth	101.6 MHz	x dB		-26.00	dB			
3				STATU	IS			

Plot 7-37. Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



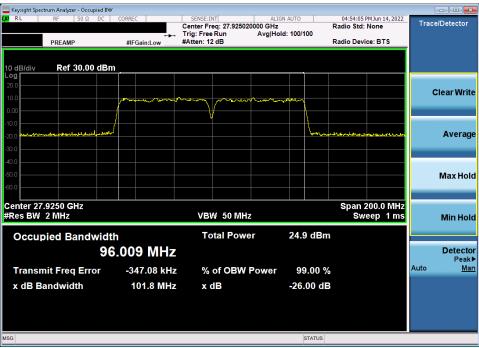
Plot 7-38. Occupied Bandwidth Plot (50MHz-2CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Page 38 of 248			
1M2204010046-01.A3L	4/18 - 6/14/2022	8 – 6/14/2022 Portable Handset				
			V1.0			



Keysight Spectrum Analyzer - Occupied BM RL RF 50 Ω DC	CORREC	SENSE:INT	ALIGN A			04:53:42	PM Jun 14, 2022	_	
		Center Freq: 27.925 Trig: Free Run		Radio Std: None :>100/100			None	Trac	e/Detector
PREAMP	#IFGain:Low	#Atten: 12 dB				Radio Dev	ice: BTS		
dB/div Ref 30.00 dBr	n								
a line line line line line line line line								_	
J.O				$\vdash$					
	minter	many more	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	nin.					Clear Wr
		$\bigvee$							
	1	V							
).0 Ware when your your where the	J. J.			· ا	Inoles	1/MAN WHILE WAR			
							a second and a second second		Avera
.0				$\vdash$				_	
.0									
									MaxHo
).0									Max nu
enter 27.9250 GHz						Snan	200.0 MHz		
Res BW 2 MHz		VBW 50 M	Hz				eep 1 ms		Min He
Occupied Bandwidt	h	Total Pov	ver	27.0	dBm				
	5.714 MHz								Detec
5	D. / 14 IVI 14								Pea
Transmit Freq Error	-286.97 kH	z % of OBV	V Power	99.	.00 %	5		Auto	N
x dB Bandwidth	111.8 MH	z xdB		-26.0	)0 dE	3			
				CT.	TATUS				

Plot 7-39. Occupied Bandwidth Plot (50MHz-2CC - 16QAM - Mid Channel)



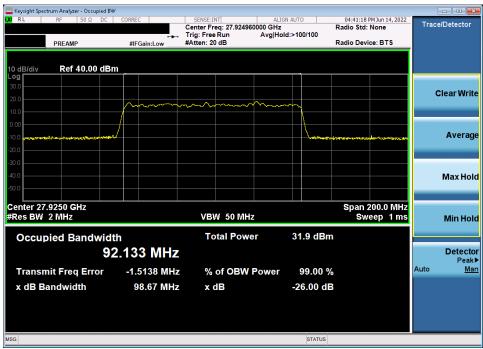
Plot 7-40. Occupied Bandwidth Plot (50MHz-2CC - 64QAM - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dama 00 af 040		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 39 of 248		
			V1.0		



Center Frei: 27.924960000 GHz Trig: Free Run #IFGaln:Low Center Frei: 27.924960000 GHz Trig: Free Run #Atten: 14 dB Clear Clear Clear Clear Maxio Device: BTS Clear Maxio Clear Min Det	Keysight Spectrum Analy								
PREAMP       #IFGain:Low       Trig: Free Run #Atten: 14 dB       Avg Hold: 100/100       Radio Device: BTS         0 dB/div       Ref 30.00 dBm	R L RF	50 Ω	RF   50 Ω	CORREC	SENSE:INT Center Freq: 27 9249	ALIGN AUTO			Trace/Detecto
0 dB/div       Ref 30.00 dBm         0 dB/div       Nin         0 dB/div       Span 200.0 MHz         Span 200.0 GHz       Span 200.0 MHz         Res BW 2 MHz       VBW 50 MHz       Span 200.0 MHz         Occupied Bandwidth       Total Power       30.0 dBm         94.851 MHz       % of OBW Power       99.00 %					Trig: Free Run		100		
Org       Clear         Org	PREAM	ИР	PREAMP	#IFGain:Low	#Atten: 14 dB		ка	Idio Device: B I S	_
Org       Clear         Org									
Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Max Span 200.0 MHz Sweep 1 ms Occupied Bandwidth 94.851 MHz Transmit Freq Error -299.14 kHz % of OBW Power 99.00 %		f 30.00	Ref 30.00	3m					
Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Clear Max Span 200.0 MHz Sweep 1 ms Nin Occupied Bandwidth 94.851 MHz Transmit Freq Error -299.14 kHz % of OBW Power 99.00 %									
Average of the second s				Jan good and the second	an and an	menan			Clear Wr
Image: Construction of the second									
Image: Construction of the second									
Image: Constraint of the second se	1.0 Mensionermania	a file and the second	warming warming	- July			Participant and the other	maharen programment and	
D00       Image: Constraint of the second seco	D.0								Avera
000       Image: Second State St	D.O								
enter 27.9250 GHz Res BW 2 MHz Span 200.0 MHz Occupied Bandwidth 94.851 MHz Transmit Freq Error -299.14 kHz % of OBW Power 99.00 %	0.0								
Image: Constraint of the second se	0.0								MaxH
enter 27.9250 GHz Res BW 2 MHz Span 200.0 MHz Occupied Bandwidth Total Power 30.0 dBm 94.851 MHz Transmit Freq Error -299.14 kHz % of OBW Power 99.00 %	0.0								WidATh
Res BW 2 MHz     VBW 50 MHz     Sweep 1 ms       Occupied Bandwidth     Total Power     30.0 dBm       94.851 MHz     Transmit Freq Error     -299.14 kHz									
Occupied Bandwidth Total Power 30.0 dBm 94.851 MHz Transmit Freq Error -299.14 kHz % of OBW Power 99.00 %									
94.851 MHz Transmit Freq Error -299.14 kHz % of OBW Power 99.00 %	Res BW 2 MHz	4	2 MHz		VBW 50 MH	z		Sweep 1	ns Min H
94.851 MHz Transmit Freq Error -299.14 kHz % of OBW Power 99.00 %					T-4-LD-				
Transmit Freq Error -299.14 kHz % of OBW Power 99.00 %	Occupied E	sandw	bled Bandw			er 50.0	лавш		
Transmit Freq Error -299.14 kHz % of OBW Power 99.00 %				94.851 MHz					Detec
	Tranomit Era	a Erro	nit Eroa Erro	200 44 64	% of OBW	Bower 00	0 0 0/		Pea Auto M
x dB Bandwidth 136.1 MHz x dB -26.00 dB									
	x dB Bandwi	dth	andwidth	136.1 MHz	x dB	-26.	.00 dB		
STATUS							SULTATS		

Plot 7-41. Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)



Plot 7-42. Occupied Bandwidth Plot (100MHz-1CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Dama 40 af 040			
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 40 of 248			
			V1.0			



Keysight Spectrum Analyzer - RL RF 50	DΩ DC	CORREC	SENSE:INT	ALIGN AUTO	04	:42:15 PM Jun 14, 2022	
PREAMP	532 00 1		Center Freq: 27.924 Trig: Free Run #Atten: 14 dB		Radio 100	o Std: None	Trace/Detector
PREAMP		#IFGain:Low _	#Atten: 14 dB		Raulo	Device. B13	
0 dB/div Ref 30	.00 dBn	۱ <u> </u>					
0.0		petro hore and		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Clear Wri
		$\bigwedge$					
).0	menonom				Mandemake	and the second second	Avera
.0							
).0							Max Ho
enter 27.9250 GHz Res BW 2 MHz	2		VBW 50 M	IHz	S	oan 200.0 MHz Sweep 1 ms	Min Ho
Occupied Bar	ndwidt	h	Total Po	wer 28.	8 dBm		
	94	.806 MH	Z				Detec Pea
Transmit Freq E	rror	-241.44 k	Hz % of OB	N Power 9	9.00 %		Auto <u>N</u>
x dB Bandwidth		101.4 MI	Hz xdB	-26	.00 dB		
3					STATUS		

Plot 7-43. Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)



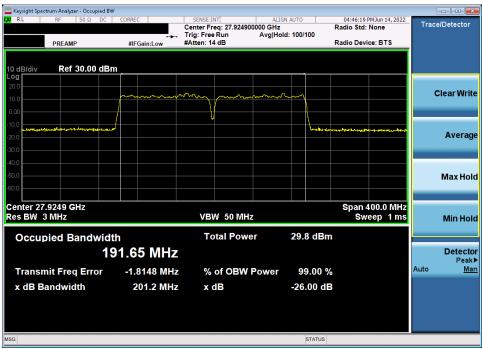
Plot 7-44. Occupied Bandwidth Plot (100MHz-1CC - 64QAM - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Page 41 of 248			
1M2204010046-01.A3L	4/18 - 6/14/2022	- 6/14/2022 Portable Handset				
			V1.0			



Keysight Spectrum Analyzer - Occu											
RL RF 50 Ω	DC   CO	RREC	SENSE:II Center Fr Trig: Free	eq: 27.924900	ALIGN 000 GHz Avg Hold:		00	04:49:09 Radio Std:	PM Jun 14, 2022 None	Trac	e/Detector
PREAMP		#IFGain:Low	#Atten: 8	dB				Radio Dev	ice: BTS		
dB/div Ref 30.00	dBm										
og 0.0											
			A .							(	Clear Wri
	1		many			-					
00											
1.0							hum	work of the state of the	4t		Avora
								addined, and odd			Avera
.0											
.0											
.0											Max Ho
.0											
enter 27.9249 GHz								Snan	400.0 MHz		
es BW 3 MHz			VB	N 50 MHz					eep 1 ms		Min Ho
Occupied Bandy				otal Power	ſ	28.2	dBm				
	194	04 MH	Z								Detect
Transmit Freq Erro		-439.04 kH	I- 0/	of OBW F		00	.00 %			Auto	Pea M
	)										
x dB Bandwidth		202.8 MH	z x	dB		-26.0	00 dE	3			
						S	TATUS				

Plot 7-45. Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



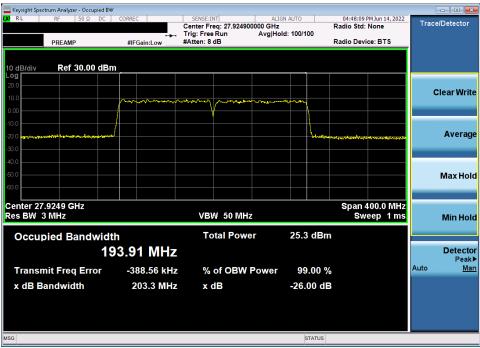
Plot 7-46. Occupied Bandwidth Plot (100MHz-2CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dage 42 of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 42 of 248		
		•	V1.0		



									_	
RL RF 50 Ω DC CORREC			SENSE:INT	SENSE:INT ALIGN AUTO Center Freq: 27.924900000 GHz			04:48:45 PM Jun 14, 2022 Radio Std: None			e/Detector
					00	Ruulo Stu.	Hone			
PREAMP		#IFGain:Low	#Atten: 8 dB				Radio Dev	ice: BTS		
Def 20	0.00 dBm									
Rei J	J.UU GBN									
										Clear Wri
		hourse	man man / / r	and the second of the second se	-	1				
			¥			1				
manyahahaha	-deally work	í				leman	anoralyman	and the second second		Avera
										Max Ho
9249 GH	z						Span -	400.0 MHz		
MHz			VBW	50 MHz						Min Ho
ied Ba	ndwidt	h	Tota	l Power	27.2	2 dBm	า			
	40									Detect
	13	74.14 IVIE								Pea
it Freq	Error	-381.64 k	Hz % of	<b>OBW</b> Power	99	.00 %	6		Auto	N
ndwidt	h	203.2 M			-26	00 de				
mawiuu		205.2 W			-20.	oo u				
						STATUS				
	Ref 31	Ref 30.00 dBn	PREAMP         #IFGain:Low           Ref 30.00 dBm	PREAMP     #IFGain:Low     Trig: Free Ru       Ref 30.00 dBm     #Atten: 8 dB       Ref 30.00 dBm     Image: State of the state o	PREAMP     #IFGain:Low     Trig: Free Run #Atten: 8 dB     Avg H       Ref 30.00 dBm	PREAMP     #FGain:Low     Trig: Free Run #Atten: 8 dB     Avg Hold: 100/1       Ref 30.00 dBm	PREAMP       #IFGalm:Low       Trig: Free Run #Atten: 8 dB       Avg Hold: 100/100         Ref 30.00 dBm       Image: Comparison of the state of t	PREAMP     #FGain:Low     Trig: Free Run #Atten: 8 dB     Avg Hold: 100/100     Radio Dev       Ref 30.00 dBm     Image: Constraint of the state of the sta	PREAMP     #FGain:Low     Trig: Free Run #Atten: 8 dB     Avg Hold: 100/100     Radio Device: BTS       Ref 30.00 dBm	PREAMP       #FGain:Low       Trig: Free Run       Avg Hold: 100/100       Radio Device: BTS         Ref 30.00 dBm

Plot 7-47. Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)



Plot 7-48. Occupied Bandwidth Plot (100MHz-2CC - 64QAM - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Dage 42 of 249			
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 43 of 248			
	•	•	V1.0			



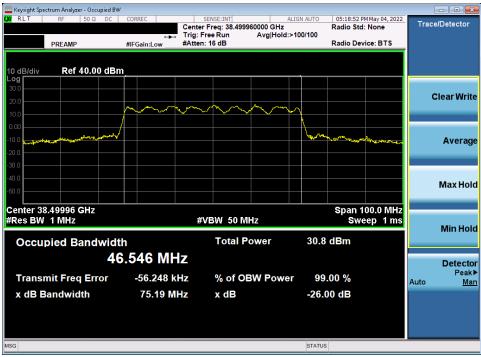
## Band n260

Channel	Bandwidth	CCs Active	Transmission Scheme	Modulation	OBW [MHz]
			CP-OFDM	QPSK	46.55
		1	DFT-s-OFDM	π/2-BPSK	46.47
		T	CP-OFDM	16QAM	46.51
	50		CP-OFDM	64QAM	46.71
	50		CP-OFDM	QPSK	95.88
		2	DFT-s-OFDM	π/2-BPSK	96.19
			CP-OFDM	16QAM	96.03
Mid			CP-OFDM	64QAM	96.23
ivilu			CP-OFDM	QPSK	95.76
		1	DFT-s-OFDM	π/2-BPSK	92.22
		T	CP-OFDM	16QAM	95.72
	100		CP-OFDM	64QAM	96.85
	100		CP-OFDM	QPSK	195.03
		2	DFT-s-OFDM	π/2-BPSK	191.03
			CP-OFDM	16QAM	195.03
			CP-OFDM	64QAM	195.87

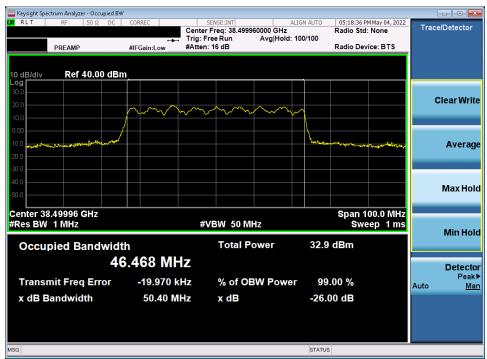
Table 7-5. Summary of Occupied Bandwidths (n260)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 11 of 210
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 44 of 248
			V1.0





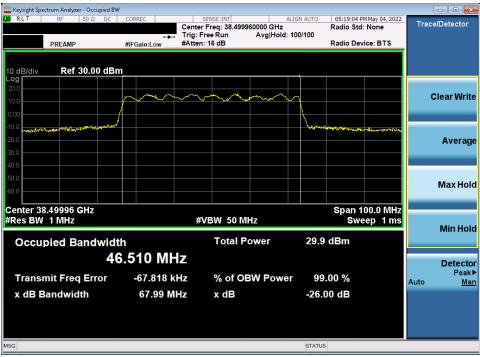
Plot 7-49. Occupied Bandwidth Plot (50MHz-1CC – QPSK – Mid Channel)

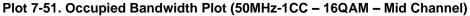


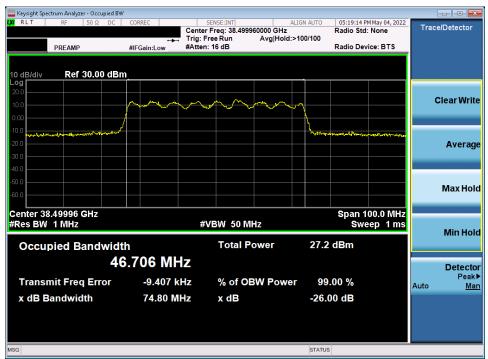
Plot 7-50. Occupied Bandwidth Plot (50MHz-1CC – pi/2-BPSK – Mid Channel)

FCC ID: A3LSMF936U	MEASUREMENT REPORT         Approved by:           (CERTIFICATION)         Technical Mana			
Test Report S/N:	Test Dates:	EUT Type:	Dega 45 of 049	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 45 of 248	
	•	÷	V1.0	





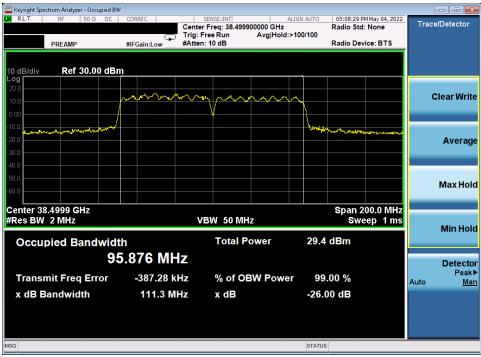




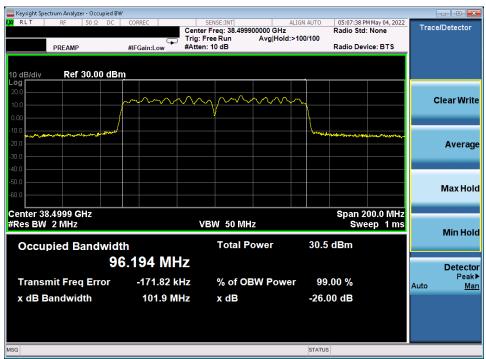
Plot 7-52. Occupied Bandwidth Plot (50MHz-1CC – 64QAM – Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Dega 46 of 249			
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 46 of 248			
		·	V1.0			





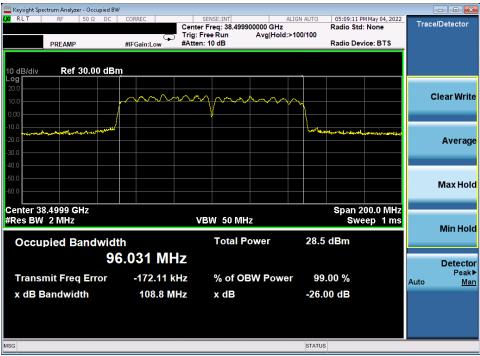
Plot 7-53. Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)



Plot 7-54. Occupied Bandwidth Plot (50MHz-2CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Dega 47 of 049			
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 47 of 248			
	•	·	V1.0			





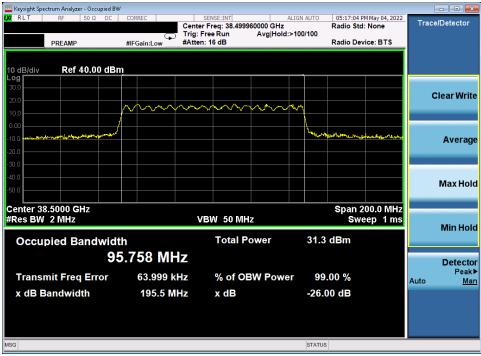
Plot 7-55. Occupied Bandwidth Plot (50MHz-2CC - 16QAM - Mid Channel)



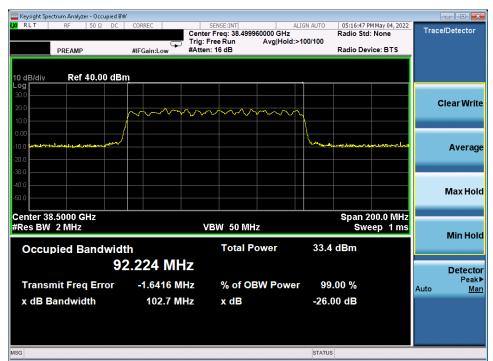
Plot 7-56. Occupied Bandwidth Plot (50MHz-2CC - 64QAM - Mid Channel)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 49 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 48 of 248
	•	-	V1.0





Plot 7-57. Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)



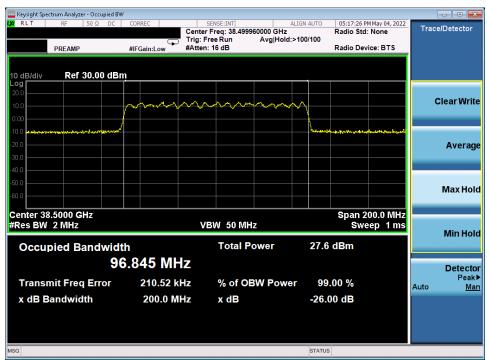
Plot 7-58. Occupied Bandwidth Plot (100MHz-1CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Dege 40 of 249			
1M2204010046-01.A3L	4/18 – 6/14/2022 Portable Handset		Page 49 of 248			
			V1.0			



www.commercenter.com/www.commercenter.com/www.commercenter.com/www.commercenter.com/www					- • ×
LX RLT RF 50Ω DC		SENSE:INT enter Freq: 38.49996000	ALIGN AUTO	05:17:15 PM May 04, 2 Radio Std: None	Trace/Detector
PREAMP		ig: Free Run A Atten: 16 dB	vg Hold:>100/100	Radio Device: BTS	
	wir Gam. Edw				
10 dB/div Ref 30.00 dB	n				
20.0					
10.0	$\sim\sim\sim\sim\sim$	$\sim\sim\sim\sim\sim$	$\sim\sim\sim$		Clear Write
0.00			\		
-10.0 martine and and and				-	**
-20.0					Average
-30.0					
-40.0					
-50.0					Max Hold
-60.0					
Center 38.5000 GHz				Span 200.0 M	
#Res BW 2 MHz		VBW 50 MHz		Sweep 1 n	Min Hold
Occupied Bandwid	th	Total Pow	er 30.4	dBm	
9	5.717 MHz				
			-		Detector Peak►
Transmit Freq Error	72.762 kHz			.00 %	Auto <u>Man</u>
x dB Bandwidth	193.8 MHz	x dB	-26.0	00 dB	
MSG			STATUS		

Plot 7-59. Occupied Bandwidth Plot (100MHz-1CC - 16QAM - Mid Channel)



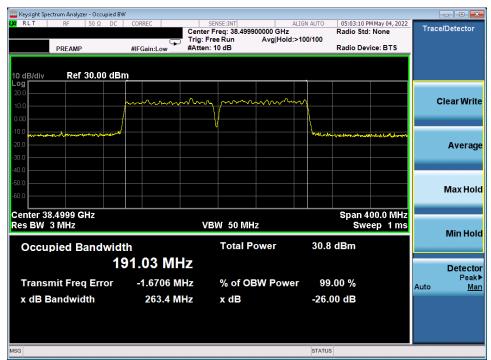
Plot 7-60. Occupied Bandwidth Plot (100MHz-1CC - 64QAM - Mid Channel)

FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dege E0 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 50 of 248
		·	V1.0



LXI RLT	RF 50 Ω											_	
		DC	CORRE	CORREC         SENSE:INT         ALIGN AUTO         05:04:34 PM May 04, 202           Center Freq:         38.499900000 GHz         Radio Std: None						Trac	e/Detector		
PF	REAMP		#IFGa	in:Low	Trig: Fre #Atten: 1		Avg Hold:	:>100	/100	Radio Dev	vice: BTS		
10 dB/div	Ref 30.00	dBn	ņ										
Log 20.0 10.0			m	hana	anny	~~~~~		~~~					Clear Write
10.0	n Jean Managero	******							-	paneld-al <sub>e</sub> cerples	draamale kunalag		Average
-40.0 -50.0 -60.0													Max Hold
Center 38.49 Res BW 3 N					VB	W 50 MH	Z				00.0 MHz eep 1 ms		Min Hold
Occupie	ed Band					Total P	ower		29.7	dBm			
		19	95.0	3 MI	Ηz								Detector
Transmit	Freq Erro	or	-1	14.97	kHz	% of OE	3W Powe	er	99.	.00 %		Auto	Peak▶ Man
x dB Ban			2	259.3 N	1Hz	x dB			-26.0	00 dB		Auto	Man
MSG									STATUS				

Plot 7-61. Occupied Bandwidth Plot (100MHz-2CC - QPSK - Mid Channel)



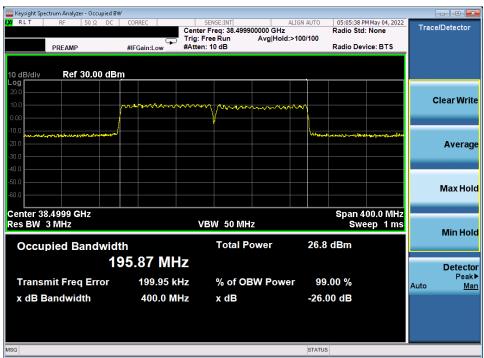
Plot 7-62. Occupied Bandwidth Plot (100MHz-2CC - pi/2-BPSK - Mid Channel)

FCC ID: A3LSMF936U	(CERTIFICATION) Tech	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 51 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 51 of 248
	•	-	V1.0



🔤 Keysight Spec	ctrum Analyz	zer - Occuj	pied BW	/											
IXI RLT	RF	50 Ω	DC	CORR	C			ENSE:INT		ALIGN	AUTO		PM May 04, 2022	Trac	e/Detector
									9900000 GH	z		Radio Sto	: None	mac	erbetector
								:FreeRun Avg Hold:>100/10 ten: 10 dB			/100	Radio De	des BTC		
	PREAMP	,		#IFGain:Low #Atten:			10 06				Radio De	VICE: DIS			
10 dB/div	Dof	30.00	dDa												
Log	Rei	30.00	uы								·				
20.0															
															Clear Write
10.0				$\sim$	$\sim$	vvm		1 mones	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~	1				
0.00								¥							
10.0			ł								IL I				
-10.0	the estimation	monthe	d way								-	****	and an algo a strange		
-20.0															Average
-30.0															
-40.0															
-50.0															
-60.0															Max Hold
-60.0															
Center 38	4000 0	14-										Enon /			
		ΠZ											100.0 MHz		
Res BW 🗧	3 IVIHZ						VE	3W 50 M	HZ			SW	eep 1ms		Min Hold
															WITH HOIG
Occu	pied B	land	widt	h				Total	Power		28.7	dBm			
						VIII	_								
			15	95.0	J 3	VI F	Ζ								Detecto
															Peak
Transr	nit Fre	q Erro	or	-6	1.60	)5 kl	Z	% of C	BW Pov	ver	99	.00 %		Auto	Mai
x dB B	o n du vi	dela			287.	4 841	1-	x dB			26 (	)0 dB			
хавв	anuwi	aun			207.		12	хав			-20.0	JU 08			

Plot 7-63. Occupied Bandwidth Plot (100MHz-2CC - 16QAM - Mid Channel)



Plot 7-64. Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)

CC ID: A3LSMF936U     (CERTIFICATION)       rest Report S/N:     Test Dates:   EUT Type:	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dage 52 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 52 of 248
		·	V1.0



# 7.3 Equivalent Isotropic Radiated Power

### §2.1046, §30.202

### **Test Overview**

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

### The average power of the sum of all antenna elements is limited to a maximum EIRP of +43 dBm.

### **Test Procedures Used**

ANSI C63.26-2015 Section 5.2.4.4.1 KDB 842590 D01 v01r02 Section 4.2

### Test Settings

- 1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
- 2. RBW = 1 5% of the expected OBW, not to exceed 1MHz
- 3. VBW  $\ge$  3 x RBW
- 4. Span = 2x to 3x the OBW
- 5. No. of sweep points  $\geq 2 \times \text{span} / \text{RBW}$
- 6. Detector = RMS
- 7. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
- 8. Trace mode = trace averaging (RMS) over 100 sweeps
- 9. The trace was allowed to stabilize

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 52 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 53 of 248
			V1.0



### Test Notes

- The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below. Both H-Beam and V-Beam were investigated and the worst-case measurements were reported below.
- 2) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.
- 3) EIRP measurements for all bands were taken at 1m test distance as was required for far-field conditions (see **Table 3-1**).
- 4) The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: EIRP (dBm) = E (dBμV/m) + 20log(D) 104.8; where D is the measurement distance (in the far field region) in m. The field strength at the antenna terminals E is calculated as: E (dBμV/m) = Spectrum Analyzer Channel Power Level (dBm) + Antenna Factor (dB/m) + Cable Loss (dB) + 107.
- 5) All EIRP measurements were made with the appropriate offset levels loaded into the spectrum analyzer as determined from the measurement distance, antenna factor, cable loss, and the equations in Note 4 above.
- 6) Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst case polarization/positioning.
- 7) This device supports transmission of H-polarized and V-polarized beams from the antenna array in both CP-OFDM and DFT-s-OFDM transmission schemes. SISO and MIMO operation is also supported for some configurations. As part of the testing, all modes are investigated fully on the channel showing the highest simulated EIRP using QPSK modulation. The configuration that shows the highest measured EIRP was then used to determine the EIRP for the low and high channels and for the additional modulations.
- 8) Several BeamID's are investigated based on the provided simulated data to determine the worst-case BeamID.

### **Sample Calculation**

The offset level loaded into the spectrum analyzer allows for a direct conversion of the raw channel power level measured by the analyzer into an EIRP. This offset level is frequency dependent and is calculated as follows:

Offset Level [dB] = Antenna Factor [dB/m] + Cable Loss [dB] + 20 Log(Distance [m]) + 107 - 104.8.

For example, to measure an EIRP at a frequency of 24400MHz with an antenna factor of 40.42dB/m, a cable loss of 7.88dB, and a measurement distance of 1 meter, an offset level of:

Offset Level = 40.42dB/m + 7.88dB + 20 Log(1 meter) + 107 - 104.8 = 50.50 dB

shall be loaded into the spectrum analyzer.

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:			Daga 54 of 240
1M2204010046-01.A3L			Page 54 of 248
			V1.0



# Band n258-R1 Beam ID Configurations

Mode	Channel	Beam Polarization	Beam ID	Beam ID Pair
	Low	Н	163	-
	LOW	V	26	-
SISO	Mid	Н	163	-
3130	IVIIG	V	26	-
	High	Н	163	-
	riigii	V	26	-
	Low	2Tx/MIMO	154	26
MIMO	Mid	2Tx/MIMO	154	26
	High	2Tx/MIMO	154	26

Table 7-6. Ant 1 Worst Case Beam ID

Mode	Channel	Beam Polarization	Beam ID	Beam ID Pair
	Low	Н	166	-
	LOW	V	39	-
SISO	Mid	Н	166	-
3130	IVIIC	V	39	-
	High	Н	166	-
	High	V	39	-
	Low	2Tx/MIMO	166	38
MIMO	Mid	2Tx/MIMO	166	38
	High	2Tx/MIMO	166	38

Table 7-7. Ant 2 Worst Case Beam ID

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga EE of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 55 of 248
			V1.0



## Band n258-R1

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Open	163	Н	SISO	н	99	268	1 / 16	27.23
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Open	26	V	SISO	V	262	302	1 / 16	27.53
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Half	26+154	H+V	2Tx	V	283	258	1 / 16	31.00
Mid	24349.92	CP-OFDM	QPSK	Folder Open	163	Н	SISO	Н	99	268	1 / 19	24.20
Mid	24349.92	CP-OFDM	QPSK	Folder Open	26	V	SISO	V	262	302	1 / 16	24.35
Mid	24349.92	CP-OFDM	QPSK	Folder Half	26+154	H + V	MIMO	V	283	258	1 / 16	27.92
Low	24275.04	DFT-s-OFDM	QPSK	Folder Half	26+154	H+V	2Tx	V	281	258	1 / 19	29.34
High	24424.92	DFT-s-OFDM	QPSK	Folder Half	26+154	H+V	2Tx	V	281	258	1 / 16	31.44
High	24424.92	DFT-s-OFDM	QPSK	Folder Closed	26+154	H + V	2Tx	V	281	261	1 / 16	30.88
High	24424.92	DFT-s-OFDM	π/2 BPSK	Folder Half	26+154	H+V	2Tx	V	281	258	1 / 16	31.41
High	24424.92	DFT-s-OFDM	16QAM	Folder Half	26+154	H+V	2Tx	V	281	258	1 / 16	29.14
High	24424.92	DFT-s-OFDM	64QAM	Folder Half	26+154	H+V	2Tx	V	281	258	1 / 16	27.42

### Table 7-8. Ant 1 EIRP Data (Band n258-R1 - 50MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
High	24399.92	DFT-s-OFDM	QPSK	Folder Half	26+154	H + V	2Tx	V	282	261	32 / 0	25.65
High	24399.92	DFT-s-OFDM	π/2 BPSK	Folder Half	26+154	H+V	2Tx	V	282	261	32 / 0	25.68
High	24399.92	DFT-s-OFDM	16QAM	Folder Half	26+154	H + V	2Tx	V	282	261	32 / 0	23.67
High	24399.92	DFT-s-OFDM	64QAM	Folder Half	26+154	H+V	2Tx	V	282	261	1 / 16	22.35

Table 7-9. Ant 1 EIRP Data (Band n258-R1 - 50MHz-2CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Open	163	Н	SISO	Н	99	268	1 / 42	27.24
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Open	26	V	SISO	V	262	302	1 / 42	27.48
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Half	26+154	H+V	2Tx	V	283	258	1 / 33	31.03
Mid	24349.92	CP-OFDM	QPSK	Folder Open	163	Н	SISO	н	99	268	1 / 42	24.16
Mid	24349.92	CP-OFDM	QPSK	Folder Open	26	V	SISO	V	262	302	1 / 42	24.44
Mid	24349.92	CP-OFDM	QPSK	Folder Half	26+154	H+V	MIMO	V	283	258	1 / 33	27.96
Low	24300.00	DFT-s-OFDM	QPSK	Folder Half	26+154	H+V	2Tx	V	281	258	1 / 33	30.84
High	24399.96	DFT-s-OFDM	QPSK	Folder Half	26+154	H+V	2Tx	V	281	258	1 / 33	31.32
High	24399.96	DFT-s-OFDM	QPSK	Folder Closed	26+154	H+V	2Tx	V	282	259	1 / 33	30.78
High	24399.96	DFT-s-OFDM	π/2 BPSK	Folder Half	26+154	H+V	2Tx	V	281	258	1 / 33	31.35
High	24399.96	DFT-s-OFDM	16QAM	Folder Half	26+154	H+V	2Tx	V	281	258	1 / 33	28.84
High	24399.96	DFT-s-OFDM	64QAM	Folder Half	26+154	H+V	2Tx	V	281	258	1 / 33	27.24

### Table 7-10. Ant 1 EIRP Data (Band n258-R1 - 100MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
High	24349.96	DFT-s-OFDM	QPSK	Folder Half	26+154	H+V	2Tx	V	283	259	64 / 0	24.96
High	24349.96	DFT-s-OFDM	π/2 BPSK	Folder Half	26+154	H+V	2Tx	V	283	259	64 / 0	24.99
High	24349.96	DFT-s-OFDM	16QAM	Folder Half	26+154	H+V	2Tx	V	283	259	1 / 33	23.79
High	24349.96	DFT-s-OFDM	64QAM	Folder Half	26+154	H + V	2Tx	V	283	259	1 / 33	22.71

Table 7-11. Ant 1 EIRP Data (Band n258-R1 - 100MHz-2CC)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dege EC of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 56 of 248		
		-	V1.0		



Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Open	166	Н	SISO	н	234	290	1 / 16	28.41
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Open	39	V	SISO	V	180	358	1 / 19	25.33
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Closed	38 + 166	H+V	2Tx	V	237	255	1 / 12	30.52
Mid	24349.92	CP-OFDM	QPSK	Folder Open	166	Н	SISO	Н	234	290	1 / 16	25.23
Mid	24349.92	CP-OFDM	QPSK	Folder Open	39	V	SISO	V	180	358	1 / 19	22.25
Mid	24349.92	CP-OFDM	QPSK	Folder Closed	38 + 166	H+V	MIMO	V	237	255	1 / 12	27.16
Low	24275.04	DFT-s-OFDM	QPSK	Folder Closed	38 + 166	H+V	2Tx	V	238	254	1 / 16	30.63
High	24424.92	DFT-s-OFDM	QPSK	Folder Closed	38 + 166	H+V	2Tx	V	238	254	1 / 16	30.48
Low	24275.04	DFT-s-OFDM	QPSK	Folder Half	38 + 166	H+V	2Tx	V	237	252	1 / 16	30.06
Low	24275.04	DFT-s-OFDM	π/2 BPSK	Folder Closed	38 + 166	H+V	2Tx	V	238	254	1 / 16	30.60
Low	24275.04	DFT-s-OFDM	16QAM	Folder Closed	38 + 166	H+V	2Tx	V	238	254	1 / 16	28.16
Low	24275.04	DFT-s-OFDM	64QAM	Folder Closed	38 + 166	H+V	2Tx	V	238	254	1 / 16	26.49

Table 7-12. Ant 2 EIRP Data (Band n258-R1 - 50MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Low	24300.04	DFT-s-OFDM	QPSK	Folder Closed	38 + 166	H + V	2Tx	V	238	256	32 / 0	24.19
Low	24300.04	DFT-s-OFDM	π/2 BPSK	Folder Closed	38 + 166	H+V	2Tx	V	238	256	32 / 0	24.18
Low	24300.04	DFT-s-OFDM	16QAM	Folder Closed	38 + 166	H+V	2Tx	V	238	256	1 / 16	23.04
Low	24300.04	DFT-s-OFDM	64QAM	Folder Closed	38 + 166	H+V	2Tx	V	238	256	1 / 16	22.13

Table 7-13. Ant 2 EIRP Data (Band n258-R1 - 50MHz-2CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Open	166	Н	SISO	Н	234	290	1 / 33	28.28
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Open	39	V	SISO	V	180	358	1 / 42	25.37
Mid	24349.92	DFT-s-OFDM	QPSK	Folder Closed	38 + 166	H + V	2Tx	V	237	255	1 / 33	30.52
Mid	24349.92	CP-OFDM	QPSK	Folder Open	166	Н	SISO	Н	234	290	1 / 33	25.15
Mid	24349.92	CP-OFDM	QPSK	Folder Open	39	V	SISO	V	180	358	1 / 33	22.31
Mid	24349.92	CP-OFDM	QPSK	Folder Closed	38 + 166	H+V	MIMO	V	237	255	1 / 33	27.17
Low	24300.00	DFT-s-OFDM	QPSK	Folder Closed	38 + 166	H + V	2Tx	V	238	254	1 / 33	30.58
High	24399.96	DFT-s-OFDM	QPSK	Folder Closed	38 + 166	H+V	2Tx	V	235	255	1 / 33	30.42
Low	24300.00	DFT-s-OFDM	QPSK	Folder Half	38 + 166	H+V	2Tx	V	237	252	1 / 23	29.94
Low	24300.00	DFT-s-OFDM	π/2 BPSK	Folder Closed	38 + 166	H+V	2Tx	V	238	254	1 / 33	30.56
Low	24300.00	DFT-s-OFDM	16QAM	Folder Closed	38 + 166	H+V	2Tx	V	238	254	1 / 33	28.17
Low	24300.00	DFT-s-OFDM	64QAM	Folder Closed	38 + 166	H+V	2Tx	V	238	254	1 / 33	26.38
		Tahl	. 7 4 4 .			مر ام مر م		400				

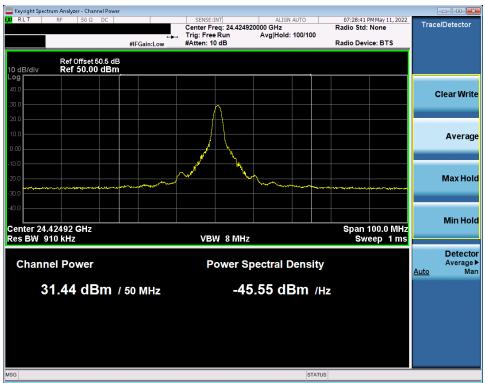
Table 7-14. Ant 2 EIRP Data (Band n258-R1 – 100MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Low	24350.00	DFT-s-OFDM	QPSK	Folder Closed	38 + 166	H+V	2Tx	V	238	256	64 / 0	24.02
Low	24350.00	DFT-s-OFDM	π/2 BPSK	Folder Closed	38 + 166	H+V	2Tx	V	238	256	64 / 0	24.03
Low	24350.00	DFT-s-OFDM	16QAM	Folder Closed	38 + 166	H+V	2Tx	V	238	256	1 / 33	22.59
Low	24350.00	DFT-s-OFDM	64QAM	Folder Closed	38 + 166	H+V	2Tx	V	238	256	1/33	22.15

Table 7-15. Ant 2 EIRP Data (Band n258-R1 - 100MHz-2CC)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Page 57 of 248		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset			
	•		V1.0		





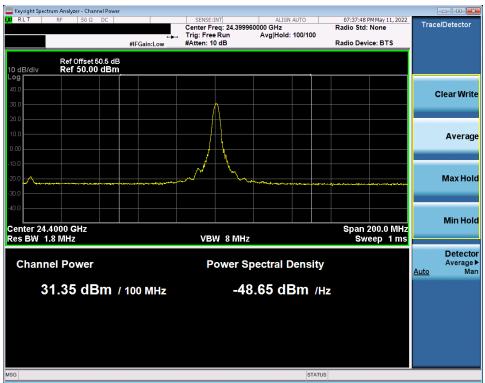




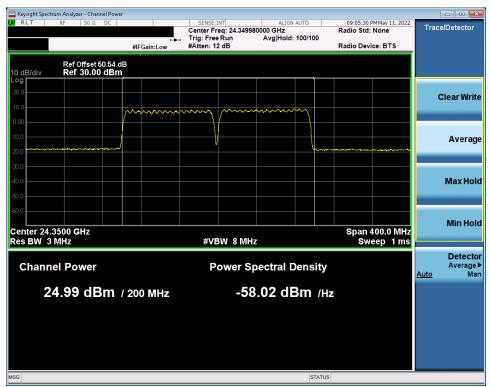
Plot 7-66. Ant 1 EIRP Plot (Band n258-R1 - 50MHz-2CC - pi/2-BPSK - High Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dogo 50 of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 58 of 248		
	-		V1.0		





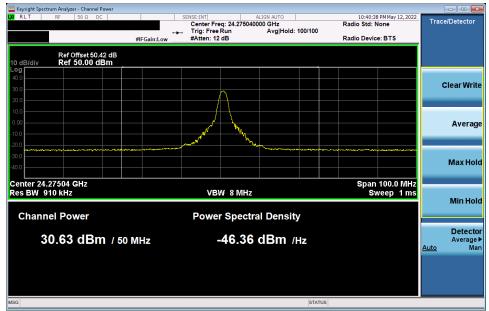
Plot 7-67. Ant 1 EIRP Plot (Band n258-R1 - 100MHz-1CC - pi/2-BPSK - High Channel)



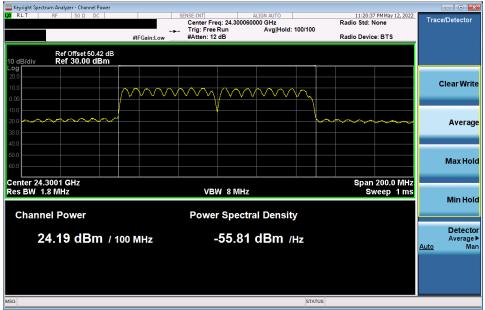
Plot 7-68. Ant 1 EIRP Plot (Band n258-R1 - 100MHz-2CC - pi/2-BPSK - High Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dege E0 of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 59 of 248		
•	•		V1.0		





Plot 7-69. Ant 2 EIRP Plot (Band n258-R1 - 50MHz-1CC - QPSK - Low Channel)



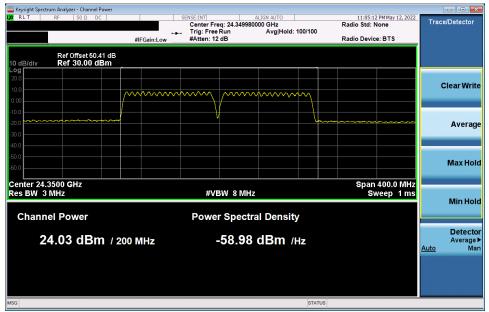
Plot 7-70. Ant 2 EIRP Plot (Band n258-R1 - 50MHz-2CC - QPSK - Low Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dege C0 of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 60 of 248		
<u></u>	•		V1.0		



Keysight Spectrum Analyzer - Channel Power 0 RLT   RF   50 Ω DC	#IFGain:Low	SENSE:INT A Center Freq: 24.3000000 → Trig: Free Run #Atten: 12 dB	LIGN AUTO 00 GHz Avg Hold: 100/100	10:47:16 PM May 12, 2022 Radio Std: None Radio Device: BTS	Trace/Detector
Ref Offset 50.41 di 10 dB/div Ref 50.00 dBm -og	3				
20.0					Clear Write
0.00					Averag
40.0					Max Hol
Center 24.3000 GHz Res BW 1.8 MHz		VBW 8 MHz		Span 200.0 MHz Sweep 1 ms	
Channel Power 30.58 dBm /	100 MHz	Power Spectra	ll Density dBm /Hz		Detecto Average <u>Auto</u> Ma
3G			STATUS		

Plot 7-71. Ant 2 EIRP Plot (Band n258-R1 - 100MHz-1CC - QPSK - Low Channel)



Plot 7-72. Ant 2 EIRP Plot (Band n258-R1 - 100MHz-2CC - pi/2-BPSK - Low Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dege 61 of 049		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 61 of 248		
		·	V1.0		



# Band n258-R2 Beam ID Configurations

Mode	Channel	Beam Polarization	Beam ID	Beam ID Pair
	Low	Н	163	-
	LOW	V	26	-
SISO	Mid	Н	163	-
3130	MIG	V	26	-
	High	Н	163	-
	Figh	V	26	-
	Low	2Tx/MIMO	154	26
MIMO	Mid	2Tx/MIMO	154	26
	High	2Tx/MIMO	154	26

Table 7-16. Ant 1 Worst Case Beam ID

Mode	Channel	Beam Polarization	Beam ID	Beam ID Pair
	Low	Н	166	-
	LOW	V	39	-
SISO	Mid	Н	166	-
3130	IVIIC	V	39	-
	High	Н	166	-
	High	V	39	-
	Low	2Tx/MIMO	166	38
MIMO	Mid	2Tx/MIMO	166	38
	High	2Tx/MIMO	166	38

Table 7-17. Ant 2 Worst Case Beam ID

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dere 62 of 240
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 62 of 248
			V1.0



## Band n258-R2

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
High	25224.96	DFT-s-OFDM	QPSK	Folder Closed	163	Н	SISO	Н	102	262	1 / 16	28.81
High	25224.96	DFT-s-OFDM	QPSK	Folder Closed	26	V	SISO	V	100	102	1 / 12	29.99
High	25200.00	DFT-s-OFDM	QPSK	Folder Closed	26+154	H+V	2Tx	Н	285	257	1 / 19	32.10
High	25200.00	CP-OFDM	QPSK	Folder Closed	163	Н	SISO	н	102	262	1 / 16	25.91
High	25224.96	CP-OFDM	QPSK	Folder Closed	26	V	SISO	V	100	102	1 / 16	26.84
High	25224.96	CP-OFDM	QPSK	Folder Closed	26+154	H + V	MIMO	Н	285	257	1 / 19	28.91
Low	24775.08	DFT-s-OFDM	QPSK	Folder Closed	26+154	H+V	2Tx	Н	283	256	1 / 16	30.43
Mid	24999.96	DFT-s-OFDM	QPSK	Folder Closed	26+154	H+V	2Tx	н	283	256	1 / 16	31.25
High	25224.96	DFT-s-OFDM	QPSK	Folder Half	26+154	H + V	2Tx	Н	282	255	1 / 12	31.76
High	25224.96	DFT-s-OFDM	π/2 BPSK	Folder Closed	26+154	H+V	2Tx	Н	285	257	1 / 19	32.01
High	25224.96	DFT-s-OFDM	16QAM	Folder Closed	26+154	H+V	2Tx	Н	285	257	1 / 19	29.70
High	25224.96	DFT-s-OFDM	64QAM	Folder Closed	26+154	H+V	2Tx	Н	285	257	1 / 19	27.97

### Table 7-18. Ant 1 EIRP Data (Band n258-R2 - 50MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
High	25199.94	DFT-s-OFDM	QPSK	Folder Closed	26+154	H+V	2Tx	Н	283	258	32 / 0	27.40
High	25199.94	DFT-s-OFDM	π/2 BPSK	Folder Closed	26+154	H + V	2Tx	Н	283	258	32 / 0	27.43
High	25199.94	DFT-s-OFDM	16QAM	Folder Closed	26+154	H+V	2Tx	Н	283	258	32 / 0	25.46
High	25199.94	DFT-s-OFDM	64QAM	Folder Closed	26+154	H + V	2Tx	н	283	258	1 / 16	23.73

Table 7-19. Ant 1 EIRP Data (Band n258-R2 - 50MHz-2CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
High	25200.00	DFT-s-OFDM	QPSK	Folder Closed	163	Н	SISO	Н	102	262	1 / 33	28.67
High	25200.00	DFT-s-OFDM	QPSK	Folder Closed	26	V	SISO	V	100	102	1 / 23	29.78
High	25200.00	DFT-s-OFDM	QPSK	Folder Closed	26+154	H + V	2Tx	Н	285	257	1 / 33	31.61
High	25200.00	CP-OFDM	QPSK	Folder Closed	163	Н	SISO	Н	102	262	1 / 33	25.50
High	25200.00	CP-OFDM	QPSK	Folder Closed	26	V	SISO	V	100	102	1 / 23	26.70
High	25200.00	CP-OFDM	QPSK	Folder Closed	26+154	H + V	MIMO	Н	285	257	1 / 42	28.50
Low	24800.04	DFT-s-OFDM	QPSK	Folder Closed	26+154	H + V	2Tx	Н	283	256	1 / 42	30.58
Mid	24999.96	DFT-s-OFDM	QPSK	Folder Closed	26+154	H + V	2Tx	Н	283	256	1 / 23	31.25
High	25200.00	DFT-s-OFDM	QPSK	Folder Half	26+154	H+V	2Tx	Н	282	255	1 / 33	31.50
High	25200.00	DFT-s-OFDM	π/2 BPSK	Folder Closed	26+154	H+V	2Tx	Н	285	257	1 / 33	31.75
High	25200.00	DFT-s-OFDM	16QAM	Folder Closed	26+154	H+V	2Tx	Н	285	257	1 / 33	29.52
High	25200.00	DFT-s-OFDM	64QAM	Folder Closed	26+154	H+V	2Tx	Н	285	257	1 / 33	27.39

### Table 7-20. Ant 1 EIRP Data (Band n258-R2 - 100MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
High	25150.02	DFT-s-OFDM	QPSK	Folder Closed	26+154	H + V	2Tx	н	283	258	64 / 0	27.21
High	25150.02	DFT-s-OFDM	π/2 BPSK	Folder Closed	26+154	H+V	2Tx	н	283	258	64 / 0	27.19
High	25150.02	DFT-s-OFDM	16QAM	Folder Closed	26+154	H+V	2Tx	н	283	258	64 / 0	25.21
High	25150.02	DFT-s-OFDM	64QAM	Folder Closed	26+154	H+V	2Tx	Н	283	258	1 / 33	23.56

Table 7-21. Ant 1 EIRP Data (Band n258-R2 - 100MHz-2CC)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Dege 62 of 249			
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 63 of 248			
	•		V1.0			



Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	24999.96	DFT-s-OFDM	QPSK	Folder Open	166	Н	SISO	н	244	307	1 / 19	28.56
Mid	24999.96	DFT-s-OFDM	QPSK	Folder Open	39	V	SISO	V	182.6	356	1 / 19	26.69
Mid	24999.96	DFT-s-OFDM	QPSK	Folder Closed	38+166	H+V	2Tx	V	234.3	252	1 / 16	30.83
Mid	24999.96	CP-OFDM	QPSK	Folder Open	166	Н	SISO	н	244	307	1 / 16	25.43
Mid	24999.96	CP-OFDM	QPSK	Folder Open	39	V	SISO	V	182.6	356	1 / 12	23.52
Mid	24999.96	CP-OFDM	QPSK	Folder Closed	38+166	H+V	MIMO	V	234.3	252	1 / 16	27.54
Low	24775.08	DFT-s-OFDM	QPSK	Folder Closed	38+166	H + V	2Tx	V	236	253	1 / 16	30.05
High	25224.96	DFT-s-OFDM	QPSK	Folder Closed	38+166	H+V	2Tx	V	236	252	1 / 16	31.41
High	25224.96	DFT-s-OFDM	QPSK	Folder Half	38+166	H+V	2Tx	V	234	255	1 / 12	31.25
High	25224.96	DFT-s-OFDM	π/2 BPSK	Folder Closed	38+166	H+V	2Tx	V	236	252	1 / 16	31.45
High	25224.96	DFT-s-OFDM	16QAM	Folder Closed	38+166	H+V	2Tx	V	236	252	1 / 16	29.19
High	25224.96	DFT-s-OFDM	64QAM	Folder Closed	38+166	H+V	2Tx	V	236	252	1 / 16	28.04

Table 7-22. Ant 2 EIRP Data (Band n258-R2 - 50MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
High	25199.94	DFT-s-OFDM	QPSK	Folder Closed	38+166	H+V	2Tx	V	236	253	32 / 0	24.85
High	25199.94	DFT-s-OFDM	π/2 BPSK	Folder Closed	38+166	H+V	2Tx	V	236	253	32 / 0	24.78
High	25199.94	DFT-s-OFDM	16QAM	Folder Closed	38+166	H+V	2Tx	V	236	253	1 / 16	23.33
High	25199.94	DFT-s-OFDM	64QAM	Folder Closed	38+166	H+V	2Tx	V	236	253	1 / 16	22.49

Table 7-23. Ant 2 EIRP Data (Band n258-R2 - 50MHz-2CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	24999.96	DFT-s-OFDM	QPSK	Folder Open	166	Н	SISO	Н	244	307	1 / 23	28.50
Mid	24999.96	DFT-s-OFDM	QPSK	Folder Open	39	V	SISO	V	182.6	356	1 / 33	26.54
Mid	24999.96	DFT-s-OFDM	QPSK	Folder Closed	38+166	H+V	2Tx	V	234.3	252	1 / 33	30.86
Mid	24999.96	CP-OFDM	QPSK	Folder Open	166	Н	SISO	н	244	307	1 / 33	25.37
Mid	24999.96	CP-OFDM	QPSK	Folder Open	39	V	SISO	V	182.6	356	1 / 33	23.57
Mid	24999.96	CP-OFDM	QPSK	Folder Closed	38+166	H+V	MIMO	V	234.3	252	1 / 33	27.59
Low	24800.04	DFT-s-OFDM	QPSK	Folder Closed	38+166	H+V	2Tx	V	236	253	1 / 33	30.07
High	25200.00	DFT-s-OFDM	QPSK	Folder Closed	38+166	H+V	2Tx	V	236	252	1 / 33	31.19
High	25200.00	DFT-s-OFDM	QPSK	Folder Half	38+166	H+V	2Tx	V	234	255	1 / 33	31.05
High	25200.00	DFT-s-OFDM	π/2 BPSK	Folder Closed	38+166	H+V	2Tx	V	236	252	1 / 33	31.18
High	25200.00	DFT-s-OFDM	16QAM	Folder Closed	38+166	H+V	2Tx	V	236	252	1 / 33	28.81
High	25200.00	DFT-s-OFDM	64QAM	Folder Closed	38+166	H+V	2Tx	V	236	252	1 / 33	27.15
		Tahl	07 04 A			and n		400		1		

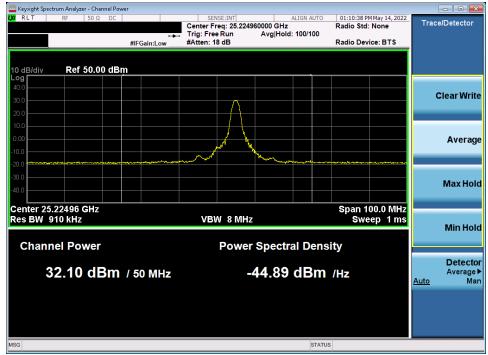
Table 7-24. Ant 2 EIRP Data (Band n258-R2 – 100MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
High	25150.02	DFT-s-OFDM	QPSK	Folder Closed	38+166	H+V	2Tx	V	236	253	64 / 0	24.48
High	25150.02	DFT-s-OFDM	π/2 BPSK	Folder Closed	38+166	H+V	2Tx	V	236	253	64 / 0	24.46
High	25150.02	DFT-s-OFDM	16QAM	Folder Closed	38+166	H+V	2Tx	V	236	253	1 / 33	23.54
High	25150.02	DFT-s-OFDM	64QAM	Folder Closed	38+166	H+V	2Tx	V	236	253	1 / 33	22.59

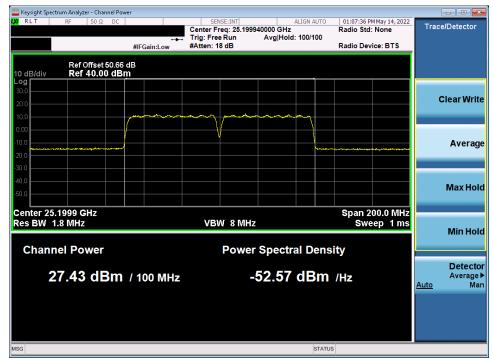
Table 7-25. Ant 2 EIRP Data (Band n258-R2 - 100MHz-2CC)

FCC ID: A3LSMF936U	(CERTIFICATION)					
Test Report S/N:	Test Dates:	EUT Type:	Dogo 64 of 249			
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 64 of 248			
	•	-	V1.0			





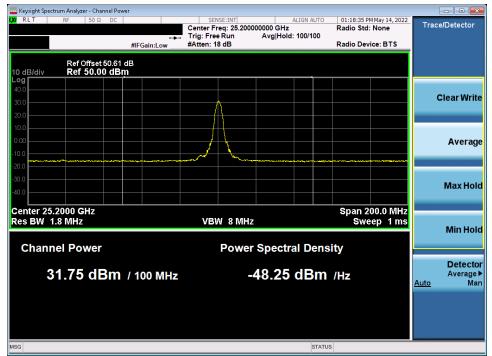
Plot 7-73. Ant 1 EIRP Plot (Band n258-R2 - 50MHz-1CC - QPSK - High Channel)



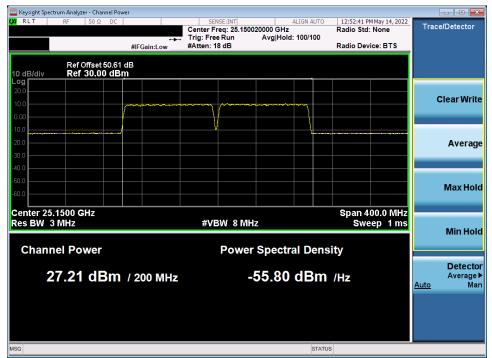
Plot 7-74. Ant 1 EIRP Plot (Band n258-R2 - 50MHz-2CC - pi/2-BPSK - High Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 65 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 65 of 248
	-		V1.0





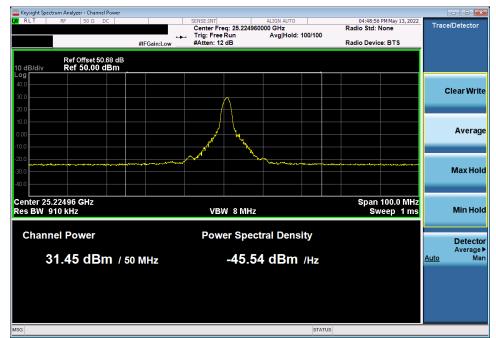
Plot 7-75. Ant 1 EIRP Plot (Band n258-R2 - 100MHz-1CC - pi/2-BPSK - High Channel)



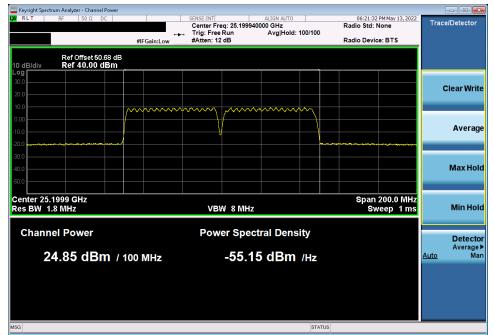
Plot 7-76. Ant 1 EIRP Plot (Band n258-R2 - 100MHz-2CC - QPSK - High Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega CC of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 66 of 248
			V1.0





Plot 7-77. Ant 2 EIRP Plot (Band n258-R2 - 50MHz-1CC - pi/2-BPSK - High Channel)



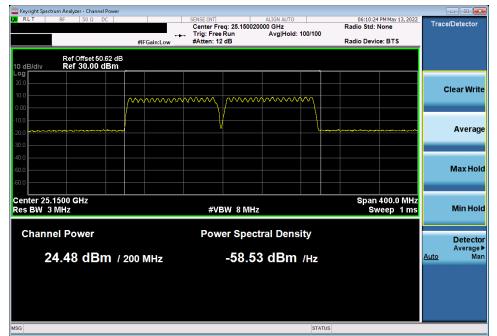
Plot 7-78. Ant 2 EIRP Plot (Band n258-R2 - 50MHz-2CC - QPSK - High Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dogo 67 of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 67 of 248		
•	•	•	V1.0		



Center Fre: 25.20000000 GHz Radio Std: None Trig: Free Run Avg Hold: 100/100 Radio Device: BTS	Trace/Detecto
#IFGain:Low         #Atten: 12 dB         Radio Device: BTS           Ref Offset 50.62 dB	
Ref Offset 50.62 dB         Comparison           0 dB/div         Ref 50.00 dBm           0 d0	
0 dB/div Ref 50.00 dBm 	
	Avera
	Avera
	Avera
	Max H
enter 25.2000 GHz Span 200.0 MHz	
es BW 1.8 MHz Sweep 1 ms	Min H
Channel Power Power Spectral Density	
Charmer Fower Spectral Density	
	Detec
	Detec Averag Auto

Plot 7-79. Ant 2 EIRP Plot (Band n258-R2 - 100MHz-1CC - QPSK - High Channel)



Plot 7-80. Ant 2 EIRP Plot (Band n258-R2 - 100MHz-2CC - QPSK - High Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 69 of 249	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 68 of 248	
			V1.0	



# Band n261 Beam ID Configurations

Лode	Channel	Beam Polarization	Beam ID	Beam ID Pair
	Low	Н	154	-
	LOW	V	35	-
9190	Mid	Н	154	-
SISO	IVIIG	V	35	-
	Lliab	Н	154	-
	High	V	35	-
	Low	2Tx/MIMO	153	25
MIMO	Mid	2Tx/MIMO	153	25
	High	2Tx/MIMO	153	25

Table 7-26. Ant 1 Worst Case Beam ID

Лоde	Channel	Beam Polarization	Beam ID	Beam ID Pair
	Low	Н	168	-
	LOW	V	40	-
SISO	Mid	Н	168	-
3130	IVIIC	V	40	-
	High	Н	168	-
	High	V	40	68       -         60       -         68       -         60       -         68       -         60       -         60       32         60       32
	Low	2Tx/MIMO	160	32
MIMO	Mid	2Tx/MIMO	160	32
	High	2Tx/MIMO	160	32

Table 7-27. Ant 2 Worst Case Beam ID

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dere CO of 240	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 69 of 248	
			V1.0	



## Band n261

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	27924.96	DFT-s-OFDM	QPSK	Folder Closed	154	Н	SISO	н	93.5	281	1 / 12	28.43
Mid	27924.96	DFT-s-OFDM	QPSK	Folder Open	35	V	SISO	V	287	253	1 / 17	29.22
Mid	27924.96	DFT-s-OFDM	QPSK	Folder Open	25+153	H+V	2Tx	н	248	284	1 / 17	32.32
Mid	27924.96	CP-OFDM	QPSK	Folder Closed	154	Н	SISO	Н	93.5	281	1 / 12	25.21
Mid	27924.96	CP-OFDM	QPSK	Folder Open	35	V	SISO	V	287	253	1 / 17	26.12
Mid	27924.96	CP-OFDM	QPSK	Folder Open	25+153	H+V	MIMO	н	248	284	1 / 17	29.37
Low	27525.00	DFT-s-OFDM	QPSK	Folder Open	25+153	H + V	2Tx	Н	249	277	1 / 17	32.48
High	28324.92	DFT-s-OFDM	QPSK	Folder Open	25+153	H+V	2Tx	Н	248	278	1 / 12	31.70
Low	27525.00	DFT-s-OFDM	QPSK	Folder Closed	25+153	H+V	2Tx	н	247	281	1 / 17	32.28
Low	27525.00	DFT-s-OFDM	π/2 BPSK	Folder Open	25+153	H+V	2Tx	Н	249	277	1 / 17	32.48
Low	27525.00	DFT-s-OFDM	16QAM	Folder Open	25+153	H+V	2Tx	Н	249	277	1 / 17	30.07
Low	27525.00	DFT-s-OFDM	64QAM	Folder Open	25+153	H+V	2Tx	Н	249	277	1 / 17	28.53

### Table 7-28. Ant 1 EIRP Data (Band n261 - 50MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Low	27550.08	DFT-s-OFDM	QPSK	Folder Open	25+153	H+V	2Tx	Н	250	276	32 / 0	27.34
Low	27550.08	DFT-s-OFDM	π/2 BPSK	Folder Open	25+153	H+V	2Tx	Н	250	276	32 / 0	27.35
Low	27550.08	DFT-s-OFDM	16QAM	Folder Open	25+153	H+V	2Tx	Н	250	276	32 / 0	25.41
Low	27550.08	DFT-s-OFDM	64QAM	Folder Open	25+153	H+V	2Tx	Н	250	276	1 / 17	23.92
		Т	hla 7 00	Ant 4 CIDE	Dete	(Dand		FOM	1- 200)			

Table 7-29. Ant 1 EIRP Data (Band n261 - 50MHz-2CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	27924.96	DFT-s-OFDM	QPSK	Folder Closed	154	Н	SISO	Н	91.6	282	1 / 42	28.66
Mid	27924.96	DFT-s-OFDM	QPSK	Folder Open	35	V	SISO	V	289.2	263	1 / 42	29.37
Mid	27924.96	DFT-s-OFDM	QPSK	Folder Open	25+153	H + V	2Tx	Н	248	284	1 / 42	32.38
Mid	27924.96	CP-OFDM	QPSK	Folder Closed	154	Н	SISO	Н	91.6	282	1 / 42	25.66
Mid	27924.96	CP-OFDM	QPSK	Folder Open	35	V	SISO	V	289.2	263	1 / 42	26.20
Mid	27924.96	CP-OFDM	QPSK	Folder Open	25+153	H + V	MIMO	Н	248	284	1 / 42	29.33
Low	27550.08	DFT-s-OFDM	QPSK	Folder Open	25+153	H + V	2Tx	Н	249	277	1 / 42	32.45
High	28299.96	DFT-s-OFDM	QPSK	Folder Open	25+153	H+V	2Tx	Н	248	278	1 / 42	31.85
Low	27550.08	DFT-s-OFDM	QPSK	Folder Closed	25+153	H + V	2Tx	Н	247	281	1 / 42	30.98
Low	27550.08	DFT-s-OFDM	π/2 BPSK	Folder Open	25+153	H+V	2Tx	Н	249	277	1 / 42	32.41
Low	27550.08	DFT-s-OFDM	16QAM	Folder Open	25+153	H+V	2Tx	Н	249	277	1 / 42	30.09
Low	27550.08	DFT-s-OFDM	64QAM	Folder Open	25+153	H + V	2Tx	Н	249	277	1 / 42	28.47

Table 7-30. Ant 1 EIRP Data (Band n261 - 100MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Low	27550.08	DFT-s-OFDM	QPSK	Folder Open	25+153	H + V	2Tx	Н	250	276	64 / 0	27.32
Low	27550.08	DFT-s-OFDM	π/2 BPSK	Folder Open	25+153	H + V	2Tx	Н	250	276	64 / 0	27.21
Low	27550.08	DFT-s-OFDM	16QAM	Folder Open	25+153	H+V	2Tx	Н	250	276	64 / 0	25.27
Low	27550.08	DFT-s-OFDM	64QAM	Folder Open	25+153	H + V	2Tx	Н	250	276	1 / 42	24.18

Table 7-31. Ant 1 EIRP Data (Band n261 - 100MHz-2CC)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dage 70 of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 70 of 248		
	•	•	V1.0		



Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Low	27525.00	DFT-s-OFDM	QPSK	Folder Closed	168	Н	SISO	н	75.6	70	1 / 19	27.23
Low	27525.00	DFT-s-OFDM	QPSK	Folder Closed	40	V	SISO	V	73	330	1 / 16	26.33
Low	27525.00	DFT-s-OFDM	QPSK	Folder Open	32 + 160	H+V	2Tx	V	238	243	1 / 12	32.07
Low	27525.00	CP-OFDM	QPSK	Folder Closed	168	Н	SISO	н	75.6	70	1 / 19	23.85
Low	27525.00	CP-OFDM	QPSK	Folder Closed	40	V	SISO	V	73	330	1 / 16	23.60
Low	27525.00	CP-OFDM	QPSK	Folder Open	32 + 160	H+V	MIMO	V	238	243	1 / 12	28.82
Mid	27924.96	DFT-s-OFDM	QPSK	Folder Open	32 + 160	H+V	2Tx	V	238	243	1 / 16	31.36
High	28324.92	DFT-s-OFDM	QPSK	Folder Open	32 + 160	H + V	2Tx	V	241	244	1 / 12	29.65
Low	27525.00	DFT-s-OFDM	QPSK	Folder Closed	32 + 160	H+V	2Tx	V	236	247	1 / 12	31.36
Low	27525.00	DFT-s-OFDM	π/2 BPSK	Folder Open	32 + 160	H+V	2Tx	V	238	243	1 / 12	32.20
Low	27525.00	DFT-s-OFDM	16QAM	Folder Open	32 + 160	H+V	2Tx	V	238	243	1 / 12	30.05
Low	27525.00	DFT-s-OFDM	64QAM	Folder Open	32 + 160	H+V	2Tx	V	238	243	1 / 12	27.99

Table 7-32. Ant 2 EIRP Data (Band n261 – 50MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Low	27550.08	DFT-s-OFDM	QPSK	Folder Open	32 + 160	H + V	2Tx	V	238	243	32 / 0	25.72
Low	27550.08	DFT-s-OFDM	π/2 BPSK	Folder Open	32 + 160	H+V	2Tx	V	238	243	32 / 0	25.70
Low	27550.08	DFT-s-OFDM	16QAM	Folder Open	32 + 160	H + V	2Tx	V	238	243	1 / 12	24.77
Low	27550.08	DFT-s-OFDM	64QAM	Folder Open	32 + 160	H+V	2Tx	V	238	243	1 / 12	23.49

Table 7-33. Ant 2 EIRP Data (Band n261 - 50MHz-2CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Low	27550.08	DFT-s-OFDM	QPSK	Folder Closed	168	Н	SISO	Н	79	70	1 / 33	26.57
Low	27550.08	DFT-s-OFDM	QPSK	Folder Closed	40	V	SISO	V	73	332	1 / 33	25.99
Low	27550.08	DFT-s-OFDM	QPSK	Folder Open	32 + 160	H+V	2Tx	V	238	243	1 / 23	32.39
Low	27550.08	CP-OFDM	QPSK	Folder Closed	168	Н	SISO	Н	79	70	1 / 33	23.30
Low	27550.08	CP-OFDM	QPSK	Folder Closed	40	V	SISO	V	73	332	1 / 33	22.67
Low	27550.08	CP-OFDM	QPSK	Folder Open	32 + 160	H+V	MIMO	V	238	243	1 / 23	29.15
Mid	27924.96	DFT-s-OFDM	QPSK	Folder Open	32 + 160	H+V	2Tx	V	238	243	1 / 23	31.54
High	28299.96	DFT-s-OFDM	QPSK	Folder Open	32 + 160	H + V	2Tx	V	241	244	1 / 23	30.41
Low	27550.08	DFT-s-OFDM	QPSK	Folder Closed	32 + 160	H + V	2Tx	V	236	247	1 / 23	30.83
Low	27550.08	DFT-s-OFDM	π/2 BPSK	Folder Open	32 + 160	H+V	2Tx	V	238	243	1 / 23	32.38
Low	27550.08	DFT-s-OFDM	16QAM	Folder Open	32 + 160	H+V	2Tx	V	238	243	1 / 23	30.30
Low	27550.08	DFT-s-OFDM	64QAM	Folder Open	32 + 160	H+V	2Tx	V	238	243	1 / 23	28.18

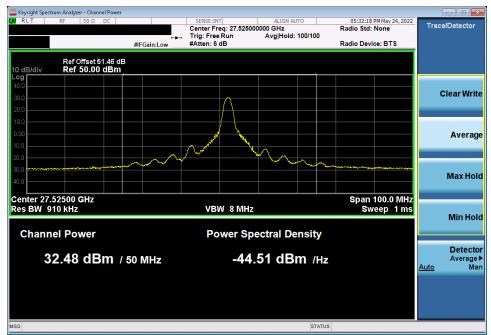
Table 7-34. Ant 2 EIRP Data (Band n261 - 100MHz-1CC)

Chai	nel F	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Lo	w	27550.08	DFT-s-OFDM	QPSK	Folder Open	32 + 160	H+V	2Tx	V	239	244	64 / 0	25.50
Lo	w	27550.08	DFT-s-OFDM	π/2 BPSK	Folder Open	32 + 160	H+V	2Tx	V	239	244	64 / 0	25.42
Lo	w	27550.08	DFT-s-OFDM	16QAM	Folder Open	32 + 160	H+V	2Tx	V	239	244	1 / 23	24.45
Lo	w	27550.08	DFT-s-OFDM	64QAM	Folder Open	32 + 160	H+V	2Tx	V	239	244	1 / 23	23.98
			Ta	blo 7-35	Ant 2 FIRP	Data	(Band	n261 -	- 100M				

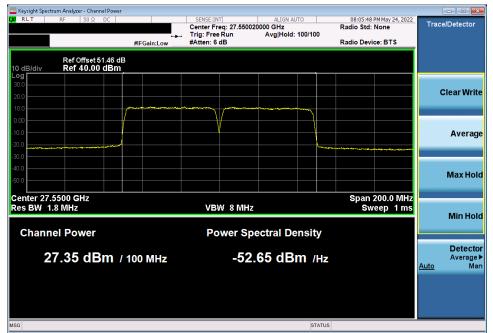
Table 7-35. Ant 2 EIRP Data (Band n261 – 100MHz-2CC)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dogo 71 of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 71 of 248		
			V1.0		





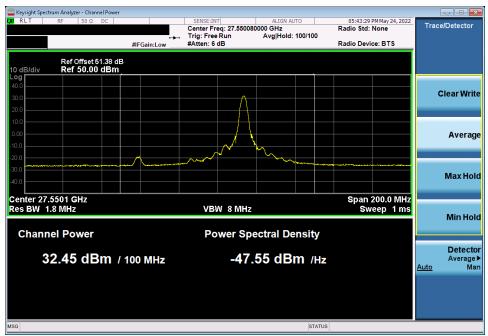
Plot 7-81. Ant 1 EIRP Plot (Band n261 - 50MHz-1CC - pi/2-BPSK - Low Channel)



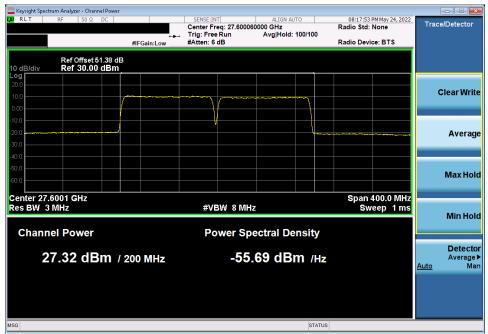
Plot 7-82. Ant 1 EIRP Plot (Band n261 - 50MHz-2CC - pi/2-BPSK - Low Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates: EUT Type:		Dage 72 of 249		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 72 of 248		
			V1.0		





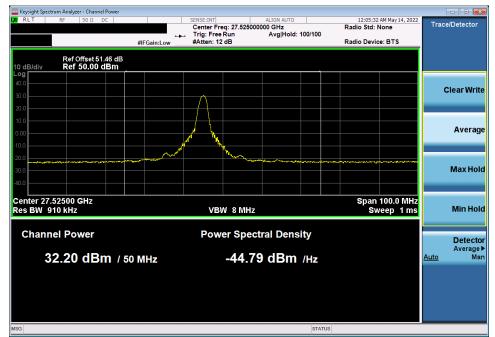
Plot 7-83. Ant 1 EIRP Plot (Band n261 - 100MHz-1CC - QPSK - Low Channel)



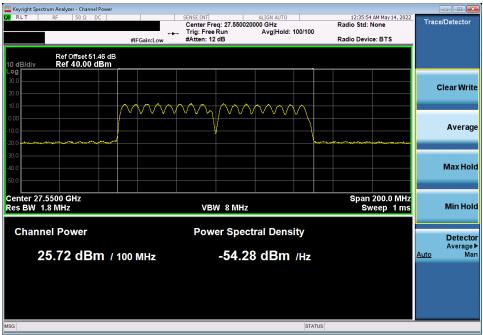
Plot 7-84. Ant 1 EIRP Plot (Band n261 - 100MHz-2CC - QPSK - Low Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 72 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 73 of 248
			V1.0





Plot 7-85. Ant 2 EIRP Plot (Band n261 - 50MHz-1CC - pi/2-BPSK - Low Channel)



Plot 7-86. Ant 2 EIRP Plot (Band n261 - 50MHz-2CC - QPSK - Low Channel)

FCC ID: A3I SMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 74 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 74 of 248
•	•	•	V1.0



	0Ω D					SENSE:IN		ALIGN	AUTO	09:33:2.	3 PM May 24, 2022		
							eq: 27.5500			Radio Std		Trac	e/Detector
				_	•				d: 100/100				
			#IEGa	in:Low		#Atten: 12	2 dB	-		Radio Dev	ice: BTS		
			in or		_								
Pof Off	of 51	30 AB											
Ker Ju	.00 u												
													Clear Wri
						Λ							Cical will
					1	$(\lambda)$							
		ا تعم											
					$\rightarrow$								
		ا العم											A
					1	<u> </u>							Avera
					1	<u> </u>							
				and the second of the second o	·	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~							
							il second						Max Ho
										Enon	200.0 044-		
	ŕ i												
MHz						VB	W 8 MHz			S	veep 1 ms		
													Min Ho
						_							
Pow	er					Po	wer Sp	ectral L	Density				
													Detect
.39 c	iВñ	n / :	100	ИНz			-4/	.61 di	3m /Hz				Averag
												Auto	M
					_				STATU	s			
	Ref 50	Ref 50.00 d	Ref 50.00 dBm	Ref Offset 51.38 dB Ref 50.00 dBm	Ref 50.00 dBm	Ref Offset 51.38 dB Ref 50.00 dBm	Ref Offset 51.38 dB Ref 50.00 dBm offset 51.38 dB ref 50.00 dBm of	Ref Offset 51.38 dB Ref 50.00 dBm 601 GHz MHz VBW 8 MHz VBW 8 MHz Power Sp	Ref Offset 51.38 dB Ref 50.00 dBm	Ref 0ffset 51.38 dB Ref 50.00 dBm	Ref 00ffset 51.38 dB Ref 50.00 dBm	Ref Offset 51.33 dB Ref 50.00 dBm Set 50.00	Image: Construction of the second

Plot 7-87. Ant 2 EIRP Plot (Band n261 - 100MHz-1CC - pi/2-BPSK - Low Channel)

w Keysight Spectrum Analyzer - Channel Powe XI RLT RF 50 Ω DC		SENSE:INT Center Freq: 27.6000	ALIGN AUTO		12:14:2 Radio Std:	1 AM May 14, 2022 None	Trace/Detector
	⊶ #IFGain:Low	<ul> <li>Trig: Free Run #Atten: 12 dB</li> </ul>	Avg Hold: 10	0/100	Radio Devi	ce: BTS	
Ref Offset 51.38 d 10 dB/div Ref 30.00 dBm Log							
20.0		·····\		Ŋ			Clear Write
0.00 10.0 20.0 30.0	~						Averag
40.0 50.0 50.0							Max Hol
Center 27.6001 GHz Res BW 3 MHz		#VBW 8 MH	Hz			400.0 MHz weep 1 ms	Min Hol
Channel Power			ctral Densit			i	Detecto Average
25.50 dBm	/ 200 MHz	-57.5	51 dBm /	Ήz			<u>Auto</u> Ma
G				STATUS			

Plot 7-88. Ant 2 EIRP Plot (Band n261 - 100MHz-2CC - QPSK - Low Channel)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 75 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 75 of 248
	•	•	V1.0



# Band n260 Beam ID Configurations

Лode	Channel	Beam Polarization	Beam ID	Beam ID Pair
	Low	Н	153	-
	LOW	V	27	-
SISO	Mid	Н	153	-
3130	IVIIG	V	27	-
	High	Н	153	-
	High	V	27	-
	Low	2Tx/MIMO	155	27
MIMO	Mid	2Tx/MIMO	155	27
	High	2Tx/MIMO	155	27

Table 7-36. Ant 1 Worst Case Beam ID

Лоde	Channel	Beam Polarization	Beam ID	Beam ID Pair
	Low	Н	166	-
	LOW	V	31	-
SISO	Mid	Н	166	-
3130	IVIIC	V	31	-
	High	Н	166	-
	High	V	31	-
	Low	2Tx/MIMO	168	40
MIMO	Mid	2Tx/MIMO	168	40
	High	2Tx/MIMO	168	40

Table 7-37. Ant 2 Worst Case Beam ID

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 76 of 240
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 76 of 248
			V1.0



## Band n260

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Closed	153	Н	SISO	V	107.6	287	1 / 16	25.72
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	27	V	SISO	Н	67.6	74	1 / 16	27.50
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	27+155	H+V	2Tx	Н	63.5	80	1 / 19	31.10
Mid	38499.96	CP-OFDM	QPSK	Folder Closed	153	Н	SISO	V	107.6	287	1 / 16	22.70
Mid	38499.96	CP-OFDM	QPSK	Folder Open	27	V	SISO	н	67.6	74	1 / 19	24.18
Mid	38499.96	CP-OFDM	QPSK	Folder Open	27+155	H + V	MIMO	Н	63.5	80	1 / 19	27.75
Low	37025.04	DFT-s-OFDM	QPSK	Folder Open	27+155	H+V	2Tx	Н	61.5	81	1 / 12	28.41
High	39975.00	DFT-s-OFDM	QPSK	Folder Open	27+155	H+V	2Tx	н	61.6	80	1 / 19	30.79
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Closed	27+155	H + V	2Tx	Н	297.1	259	1 / 19	30.81
Mid	38499.96	DFT-s-OFDM	π/2 BPSK	Folder Open	27+155	H+V	2Tx	Н	63.5	80	1 / 19	31.01
Mid	38499.96	DFT-s-OFDM	16QAM	Folder Open	27+155	H+V	2Tx	Н	63.5	80	1 / 19	28.65
Mid	38499.96	DFT-s-OFDM	64QAM	Folder Open	27+155	H+V	2Tx	Н	63.5	80	1 / 19	26.89

Table 7-38. Ant 1 EIRP Data (Band n260 – 50MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	27+155	H + V	2Tx	Н	63.5	80	32 / 0	25.12
Mid	38499.96	DFT-s-OFDM	π/2 BPSK	Folder Open	27+155	H+V	2Tx	Н	63.5	80	32 / 0	25.20
Mid	38499.96	DFT-s-OFDM	16QAM	Folder Open	27+155	H+V	2Tx	Н	63.5	80	32 / 0	23.61
Mid	38499.96	DFT-s-OFDM	64QAM	Folder Open	27+155	H+V	2Tx	Н	63.5	80	1 / 16	21.82

Table 7-39. Ant 1 EIRP Data (Band n260 - 50MHz-2CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Closed	153	Н	SISO	Н	107.6	287	1 / 33	25.62
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	27	V	SISO	Н	67.6	74	1 / 42	27.29
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	27+155	H+V	2Tx	Н	63.5	80	1 / 33	30.18
Mid	38499.96	CP-OFDM	QPSK	Folder Closed	153	Н	SISO	Н	107.6	287	1 / 33	22.60
Mid	38499.96	CP-OFDM	QPSK	Folder Open	27	V	SISO	Н	67.6	74	1 / 42	24.20
Mid	38499.96	CP-OFDM	QPSK	Folder Open	27+155	H+V	MIMO	Н	63.5	80	1 / 33	26.94
Low	37050.00	DFT-s-OFDM	QPSK	Folder Open	27+155	H+V	2Tx	н	61	81	1 / 33	28.15
High	39949.92	DFT-s-OFDM	QPSK	Folder Open	27	H + V	2Tx	Н	61	80	1 / 33	28.77
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Closed	27+155	H+V	2Tx	н	297.1	259	1 / 33	29.95
Mid	38499.96	DFT-s-OFDM	π/2 BPSK	Folder Open	27+155	H+V	2Tx	н	63.5	80	1/33	30.38
Mid	38499.96	DFT-s-OFDM	16QAM	Folder Open	27+155	H+V	2Tx	Н	63.5	80	1 / 33	27.89
Mid	38499.96	DFT-s-OFDM	64QAM	Folder Open	27+155	H+V	2Tx	Н	63.5	80	1 / 33	26.11

#### Table 7-40. Ant 1 EIRP Data (Band n260 - 100MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	27+155	H+V	2Tx	н	63.5	80	64 / 0	24.33
Mid	38499.96	DFT-s-OFDM	π/2 BPSK	Folder Open	27+155	H+V	2Tx	Н	63.5	80	64 / 0	24.43
Mid	38499.96	DFT-s-OFDM	16QAM	Folder Open	27+155	H+V	2Tx	н	63.5	80	64 / 0	22.90
Mid	38499.96	DFT-s-OFDM	64QAM	Folder Open	27+155	H+V	2Tx	Н	63.5	80	1 / 33	21.32

Table 7-41. Ant 1 EIRP Data (Band n260 - 100MHz-2CC)

FCC ID: A3LSMF936U		MEASUREMENT REPORT Approved by: (CERTIFICATION) Technical Mana			
Test Report S/N:	Test Dates:	EUT Type:	Dage 77 of 049		
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 77 of 248		
			V1.0		



Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	166	Н	SISO	V	162	335	1 / 12	26.30
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Closed	31	V	SISO	Н	96	21	1 / 12	27.68
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	40 + 168	H+V	2Tx	V	111	347	1 / 12	28.76
Mid	38499.96	CP-OFDM	QPSK	Folder Open	166	Н	SISO	V	162	335	1 / 12	23.14
Mid	38499.96	CP-OFDM	QPSK	Folder Closed	31	V	SISO	н	96	21	1 / 12	24.52
Mid	38499.96	CP-OFDM	QPSK	Folder Open	40 + 168	H+V	MIMO	V	111	347	1 / 12	25.64
Low	37025.04	DFT-s-OFDM	QPSK	Folder Open	40 + 168	H+V	2Tx	V	114	345	1 / 12	27.69
High	39975.00	DFT-s-OFDM	QPSK	Folder Open	40 + 168	H+V	2Tx	V	111	357	1 / 16	24.54
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Closed	40 + 168	H+V	2Tx	V	105	351	1 / 12	27.69
Mid	38499.96	DFT-s-OFDM	π/2 BPSK	Folder Open	40 + 168	H+V	2Tx	V	111	347	1 / 12	28.69
Mid	38499.96	DFT-s-OFDM	16QAM	Folder Open	40 + 168	H+V	2Tx	V	111	347	1 / 12	26.21
Mid	38499.96	DFT-s-OFDM	64QAM	Folder Open	40 + 168	H+V	2Tx	V	111	347	1 / 12	24.51

Table 7-42. Ant 2 EIRP Data (Band n260 - 50MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	40 + 168	H + V	2Tx	V	111	347	32 / 0	22.26
Mid	38499.96	DFT-s-OFDM	π/2 BPSK	Folder Open	40 + 168	H+V	2Tx	V	111	347	32 / 0	22.23
Mid	38499.96	DFT-s-OFDM	16QAM	Folder Open	40 + 168	H+V	2Tx	V	111	347	32 / 0	20.62
Mid	38499.96	DFT-s-OFDM	64QAM	Folder Open	40 + 168	H+V	2Tx	V	111	347	32 / 0	19.09

Table 7-43. Ant 2 EIRP Data (Band n260 - 50MHz-2CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	166	Н	SISO	V	162	335	1 / 33	26.53
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Closed	31	V	SISO	Н	96	21	1 / 33	27.70
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	40 + 168	H + V	2Tx	V	111	347	1 / 33	28.74
Mid	38499.96	CP-OFDM	QPSK	Folder Open	166	Н	SISO	V	162	335	1 / 23	23.45
Mid	38499.96	CP-OFDM	QPSK	Folder Closed	31	V	SISO	Н	96	21	1 / 33	24.52
Mid	38499.96	CP-OFDM	QPSK	Folder Open	40 + 168	H+V	MIMO	V	111	347	1 / 33	25.42
Low	37050.00	DFT-s-OFDM	QPSK	Folder Open	40 + 168	H + V	2Tx	V	114	345	1 / 33	27.42
High	39949.92	DFT-s-OFDM	QPSK	Folder Open	40 + 168	H+V	2Tx	V	111	357	1 / 33	24.31
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Closed	40 + 168	H+V	2Tx	V	105	351	1 / 33	27.83
Mid	38499.96	DFT-s-OFDM	π/2 BPSK	Folder Open	40 + 168	H+V	2Tx	V	111	347	1 / 33	28.54
Mid	38499.96	DFT-s-OFDM	16QAM	Folder Open	40 + 168	H+V	2Tx	V	111	347	1 / 33	26.18
Mid	38499.96	DFT-s-OFDM	64QAM	Folder Open	40 + 168	H+V	2Tx	V	111	347	1 / 33	24.48
		Та			Data	(Dand	- 260 -	10014				

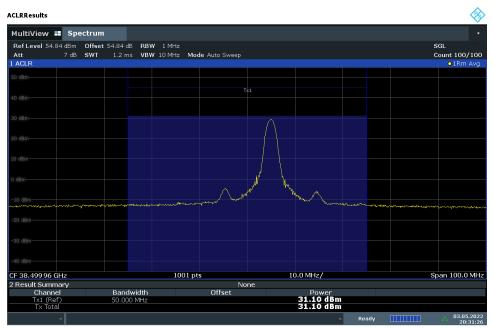
Table 7-44. Ant 2 EIRP Data (Band n260 - 100MHz-1CC)

Channel	Frequency [MHz]	Transmission Scheme	Modulation	Configuration	BeamID	Beam Pol.	Ant. Div.	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
Mid	38499.96	DFT-s-OFDM	QPSK	Folder Open	40 + 168	H+V	2Tx	V	111	347	64 / 0	21.53
Mid	38499.96	DFT-s-OFDM	π/2 BPSK	Folder Open	40 + 168	H+V	2Tx	V	111	347	64 / 0	21.54
Mid	38499.96	DFT-s-OFDM	16QAM	Folder Open	40 + 168	H+V	2Tx	V	111	347	1 / 33	20.43
Mid	38499.96	DFT-s-OFDM	64QAM	Folder Open	40 + 168	H+V	2Tx	V	111	347	1 / 33	19.82

Table 7-45. Ant 2 EIRP Data (Band n260 - 100MHz-2CC)

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 70 of 240
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 78 of 248
			V1.0



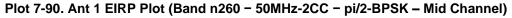


20:31:27 03.05.2022



Plot 7-89. Ant 1 EIRP Plot (Band n260 - 50MHz-1CC - QPSK - Mid Channel)

21:50:19 03.05.2022

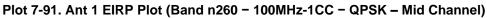


FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 79 of 248
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Fage 79 01 240
			V1.0



MultiView 📰 Spectr	um							-
Ref Level 54.84 dBm Of	iset 54.84 dB RB	W 2 MHz						SGL
Att 7 dB SW	/T 1.2 ms VB	W 20 MHz N	Node Auto Sweep					Count 100/100
ACLR								•1Rm Avg
50 dBm								
0 dBm				×1				
30 dBm				$\wedge$				
				<u> </u>				
			$\wedge l$	4				
10.dBm	and the second				homenon	·····	Antonio antinio antina dalla dalla	and and a start of the start of
20 dBm								
30 dBm								
F 38,499 96 GHz		1001	pts		20.0 MHz/			Span 200.0 MH
Result Summary			No	ine				
Channel	Bandwidth		Offset		Power			
Tx1 (Ref) Tx Total	100.000 MHz				30.38 dBm 30.38 dBm			

22:14:35 03.05.2022



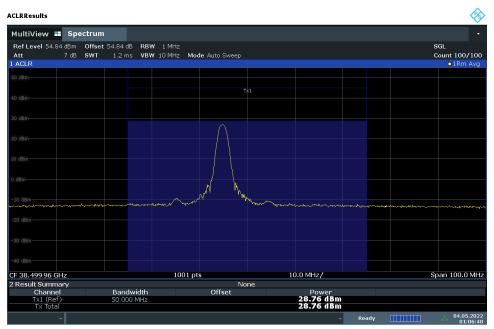


22:00:07 03.05.2022

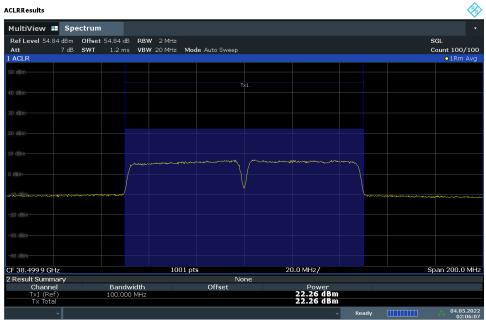


FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 80 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 80 of 248
		-	V1.0



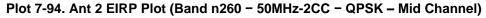


01:06:48 04.05.2022



Plot 7-93. Ant 2 EIRP Plot (Band n260 - 50MHz-1CC - QPSK - Mid Channel)

02:06:08 04.05.2022

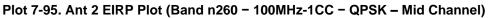


FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 91 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 81 of 248
			V1.0



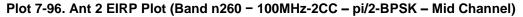
tefLevel 54.84 dBm Offset htt 7 dB SWT ACLR	54.84 dB RB						
		N 2 MHz					SGL
	1.2 ms VB	N 20 MHz I	Mode Auto Sweep				Count 100/100
ACER							1Rm Avg
			Ts				
			1	1			
			s s s s s s s s s s s s s s s s s s s				
1.dRm							
0 d8m							
0 d8m							
38.499 96 GHz		1001	pts	2	0.0 MHz/		Span 200.0 MH
Result Summary			Nor	he			
Channel Tx1 (Ref)	Bandwidth 100.000 MHz		Offset		Power 28.74 dBm 28.74 dBm		

01:24:04 04.05.2022





01:45:34 04.05.2022



FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 82 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 82 of 248
		·	V1.0



# 7.4 Radiated Spurious and Harmonic Emissions

#### §2.1051, §30.203

#### Test Overview

The spectrum is scanned from 30MHz to 100GHz for n258-R1, n258-R2, and n261. For n260, the spectrum is scanned from 30MHz to 200GHz. All out of band emissions are measured in a radiated test setup while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All modulations were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

# The conductive power or total radiated power of any emissions outside a licensee's frequency block shall be -13dBm/1MHz.

#### Test Procedure Used

ANSI C63.26-2015 Section 5.7.4 KDB 842590 D01 v01r02 Section 4.4.3

#### Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to 100 GHz for n261 and 200GHz for n260. Several plots are used to show investigations in this entire span.
- 2. Detector = RMS
- 3. Trace mode = trace average
- 4. Sweep time = auto couple
- 5. Number of sweep points  $\geq$  2 x Span/RBW
- 6. The trace was allowed to stabilize
- 7. RBW = 1MHz, VBW = 3MHz

#### Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- All radiated spurious emissions were measured as EIRP to compare with the §30.203 TRP limits. Emissions
  that were found to be non-compliant using the EIRP method were re-measured using the Spherical Grid
  TRP Method per KDB 842590.
- 3) The plots in this section were taken with the analyzer set to max hold. All final measurements shown in the tables that accompany the plots were taken with trace averaging performed over 100 sweeps while the analyzer was triggering on a specific emission of interest.
- 4) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.

FCC ID: A3LSMF936U		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dage 82 of 248	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 83 of 248	
-	•	·	V1.0	



- 5) The plots from 1-200GHz show corrected average EIRP levels. The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: EIRP (dBm) = E (dBµV/m) + 20log(D) 104.8; where D is the measurement distance (in the far field region) in m. The field strength E is calculated E (dBµV/m) = Spectrum Analyzer Level (dBm) + Antenna Factor (dB/m) + Cable Loss (dB) + Harmonic Mixer Conversion Loss (dB) + 107. All appropriate Antenna Factor and Cable Loss have been applied in the spectrum analyzer for each measurement. For measurements > 40GHz, Harmonic Mixer Conversion Loss was also applied to the spectrum analyzer.
- 6) Emissions below 18GHz were measured at a 3 meter test distance, while emissions above 18GHz were measured at the appropriate far field distance. The far field of the mmWave signal is based on formula: R > 2D^2/wavelength, where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, D is the largest dimension of the measurement antenna.

Frequency Range (GHz)	Wavelength(cm)	Far Field Distance (m)	Measurement Distance (m)
18-40	0.749	0.54	1.00
40-60	0.500	1.39	1.50
60-90	0.333	0.91	1.00
90-140	0.214	0.58	1.00
140-200	0.150	0.39	1.00

Table 7-46. Far-Field Distance & Measurement Distance per Frequency Range

- 7) All emissions from 30MHz 40GHz were measured using a spectrum analyzer with an internal preamplifier. Emissions >40GHz were measured using a harmonic mixer with the spectrum analyzer.
- All RSE's were measured with 1CC. It was determined that adding more CC's causes the overall amplitude of just 1CC to decrease, therefore, 1CC is the worst case for the purposes of spurious emissions measurements.
- 9) The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 10) All RSE's were investigated in EN-DC mode and with 802.11 chipset active. It was determined that there is no new emission introduced by EN-DC mode, or the 802.11 chipset. For EN-DC mode, n261 uses LTE B2, B5, B12, B13, B48 and B66, n260 uses LTE B2, B5, B12, B13, B14,B30, B48 and B66 and n258 uses LTE B2, B5, B12, B14, B30, and B66.
- 11) There was no discernible difference in the spurious emission levels when using different LTE and NR FR1 anchor bands. Thus, LTE Band 2 was used as a representative anchor band for EN-DC investigations.

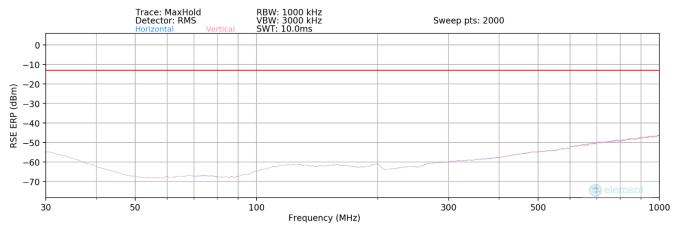
FCC ID: A3LSMF936U		Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dage 94 of 949	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 84 of 248	
			V1.0	

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element. If you have any questions about this or have an inquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.



# Band n258-R1 - Ant 1

## 30MHz - 1GHz



Plot 7-97. Ant 1 - n258-R1 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx - EN-DC Anchor Band 2)

## Spurious Emissions ERP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE ERP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

**RSE ERP (dBm)** = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) - 104.8 - 2.15 (dB)

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
629.71	Low	50	2Tx	QPSK	V	-	-	-49.72	-13.00	-36.72
698.07	Mid	50	2Tx	QPSK	V	-	-	-48.28	-13.00	-35.28
846.44	High	50	2Tx	QPSK	V	-	-	-45.99	-13.00	-32.99

 Table 7-47. Ant 1 - n258-R1 Radiated Spurious Emissions Table (30MHz - 1GHz)

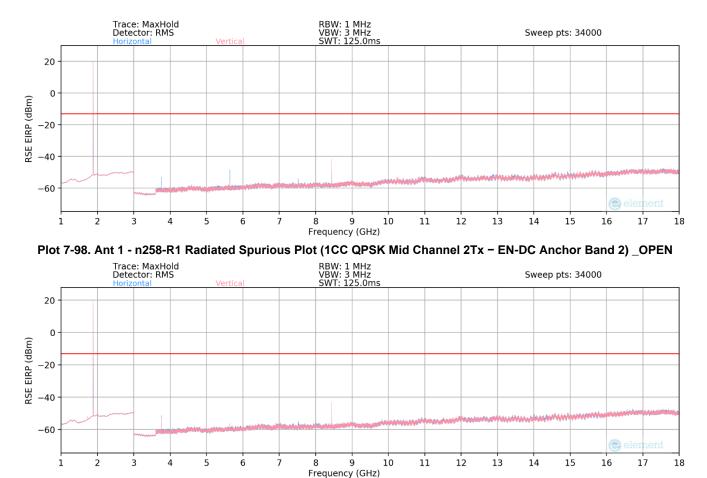
#### <u>Notes</u>

The RSE ERP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

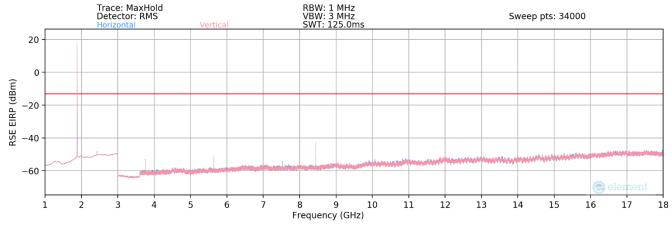
FCC ID: A3LSMF936U		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 95 of 249
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 85 of 248
			V1.0



# 1GHz - 18GHz







Plot 7-100. Ant 1 - n258-R1 Radiated Spurious Plot (1CC QPSK Mid Channel 2Tx - EN-DC Anchor Band 2) \_HALF

FCC ID: A3LSMF936U		Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dogo 96 of 249	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 86 of 248	
			V1.0	



## Spurious Emissions EIRP Sample Calculation (n258-R1)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 3 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) - 104.8

Frequency [MHz]	Channnel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8367.00	Low	50	2Tx	QPSK	V	26	175	-45.37	-13.00	-32.37
8442.00	Mid	50	2Tx	QPSK	V	27	185	-41.00	-13.00	-28.00
8517.00	High	50	2Tx	QPSK	V	27	174	-45.48	-13.00	-32.48

Notes

Table 7-48. Ant 1 - n258-R1 Radiated Spurious Emissions Table (1GHz - 18GHz)

The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, and cable losses. Measurements were performed at a distance of 3 meter.

FCC ID: A3LSMF936U		Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dege 07 of 240	
1M2204010046-01.A3L	4/18 - 6/14/2022	Portable Handset	Page 87 of 248	
			V1.0	