



SAR EVALUATION REPORT

Applicant Name:
 Samsung Electronics Co., Ltd.
 129, Samsung-ro, Maetan dong,
 Yeongtong-gu, Suwon-si
 Gyeonggi-do, 16677, Korea

Date of Testing:
 03/17/20 – 04/04/20
Test Site/Location:
 PCTEST, Columbia, MD, USA
Document Serial No.:
 1M2003120043-01.A3L

FCC ID: A3LSMG986U


APPLICANT: SAMSUNG ELECTRONICS CO., LTD.

DUT Type: Portable Handset
Application Type: Class II Permissive Change
FCC Rule Part(s): CFR §2.1093
Model: SM-G986U
Additional Model(s): SM-G986U1
Permissive Change(s): Adding DFT-s-OFDM $\pi/2$ BPSK Modulation to NR
Date of Original Certification 01/24/2020

Note: Please refer to RF Exposure Technical Report S/N: 1M1910220166-01-R1.A3L for original compliance evaluation.

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.5 of this report; for North American frequency bands only.

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. Test results reported herein relate only to the item(s) tested.


 Randy Ortanez
 President



The SAR Tick is an initiative of the Mobile & Wireless Forum (MWF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MWF. Further details can be obtained by emailing: sartick@mwfai.info.






FCC ID: A3LSMG986U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset	Page 1 of 25	

TABLE OF CONTENTS




1	DEVICE UNDER TEST	3
2	NR FR1 INFORMATION	6
3	RF CONDUCTED POWERS	7
4	EQUIPMENT LIST	23
5	REFERENCES	24

FCC ID: A3LSMG986U	 PCTEST <small>Proud to be part of  element</small>	SAR EVALUATION REPORT	 Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset	Page 2 of 25

1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
CDMA/EVDO BC10 (§90S)	Voice/Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 14	Voice/Data	790.5 - 795.5 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 30	Voice/Data	2307.5 - 2312.5 MHz
LTE Band 7	Voice/Data	2502.5 - 2567.5 MHz
LTE Band 48	Voice/Data	3552.5 - 3697.5 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
LTE Band 38	Voice/Data	2572.5 - 2617.5 MHz
NR Band n71	Data	665.5 - 695.5 MHz
NR Band n5	Data	826.5 - 846.5 MHz
NR Band n66	Data	1712.5 - 1777.5 MHz
NR Band n2	Data	1852.5 - 1907.5 MHz
NR Band n41	Data	2506.02 - 2679.99 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2462 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
ANT+	Data	2402 - 2480 MHz
MST	Data	555 Hz - 8.33 kHz
NR Band n260	Data	37000 - 40000 MHz
NR Band n261	Data	27500 - 28350 MHz

FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT	 Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset	Page 3 of 25

1.2 Time-Averaging Algorithm for RF Exposure Compliance

Exposure Scenario:		Body-Worn	Phablet	Phablet	Head	Hotspot	Phablet	Maximum Tune-up Output Power*
Averaging Volume:		1g	10g	10g	1g	10g	10g	
Spacing:		15 mm	6, 8, 11 mm	0 mm	0 mm	10 mm	0 mm	
DSI:		0	0	1	2	3	4	
Technology/Band	Antenna	Plimit corresponding to 1mW/g (SAR_design_target)						
GSM/GPRS/EDGE 850 MHz	A	30.9	30.9	26.1	31.1	26.1	26.1	24.8
GSM/GPRS/EDGE 1900 MHz	A	25.5	25.5	18.8	34.0	18.8	18.8	21.3
UMTS B5	A	30.6	30.6	26.0	31.6	26.0	26.0	24
UMTS B4	A	25.0	25.0	19.0	32.6	19.0	19.0	23.5
UMTS B2	A	24.9	24.9	18.5	32.9	18.5	18.5	23.5
CDMA/EVDO BC10	A	31.6	31.6	26.2	32.0	26.2	26.2	24.8
CDMA/EVDO BC0	A	30.8	30.8	26.2	31.1	26.2	26.2	24.8
CDMA/EVDO BC1	A	24.8	24.8	19.0	32.6	18.5	19.0	23.5
LTE FDD B71	A	32.6	32.6	29.8	34.9	29.8	29.8	24.5
LTE FDD B12	A	32.2	32.2	29.6	34.1	29.6	29.6	24.8
LTE FDD B13	A	30.9	30.9	27.2	32.9	27.2	27.2	24.8
LTE FDD B14	A	30.3	30.3	26.7	31.5	26.7	26.7	24.8
LTE FDD B26	A	30.5	30.5	25.8	31.6	25.8	25.8	24.8
LTE FDD B5	A	30.9	30.9	26.1	31.8	26.1	26.1	24.8
LTE FDD B66/4	A	24.8	24.8	19.8	32.7	19.5	19.8	24
LTE FDD B25	A	25.2	25.2	18.5	33.0	18.5	18.5	23.5
LTE FDD B2	A	25.2	25.2	18.5	33.0	18.5	18.5	23.5
LTE FDD B30	A	24.7	24.7	20.5	32.8	18.2	20.5	22
LTE FDD B7	B	27.5	27.5	20.5	32.6	19.5	20.5	23
LTE TDD B48	G	22.5	22.5	22.5	16.5	22.5	22.5	21
LTE TDD B38	B	28.0	28.0	19.0	28.0	19.0	19.0	22
LTE TDD B41 (PC3 & PC2)	B	29.5	29.5	21.5	34.6	19.0	21.5	23.1
NR FDD n71	A	31.9	31.9	29.4	34.3	29.4	29.4	24.5
NR FDD n5	A	31.0	31.0	25.8	31.7	25.8	25.8	24.8
NR FDD n66	A	25.4	25.4	19.8	32.8	19.8	19.8	24
NR FDD n2	A	26.1	26.1	18.5	32.5	18.5	18.5	23.5
NR TDD n41	F	22.9	22.9	22.9	14.0	22.9	22.9	17.5

The Smart Transmit Algorithm was not affected by the permissive changes. Please see original technical filings 1M1910220166-01-R1.A3L for compliance evaluation.

1.3 Nominal and Maximum Output Power Specifications




This device operates using the following maximum and nominal output power specifications. Please refer to RF Exposure Technical Report S/N: 1M1910220166-01-R1.A3L for complete maximum and nominal output power specifications.

1.3.1 5G Output Power

Mode / Band		Modulated Average Output Power (in dBm)				
		Max (DSI = 0)	RCV Mode Active (DSI = 2)	Hotspot Mode Active (DSI = 3)	Earjack Active (DSI = 4)	Proximity Sensor Active (DSI = 1)
NR FDD Band n71	Max allowed power	25.5	25.5	25.5	25.5	25.5
	Nominal	24.5	24.5	24.5	24.5	24.5
NR FDD Band n5	Max allowed power	25.8	25.8	25.8	25.8	25.8
	Nominal	24.8	24.8	24.8	24.8	24.8
NR FDD Band n2	Max allowed power	24.5	24.5	19.5	19.5	19.5
	Nominal	23.5	23.5	18.5	18.5	18.5
NR FDD Band n66	Max allowed power	25.0	25.0	20.8	20.8	20.8
	Nominal	24.0	24.0	19.8	19.8	19.8
NR TDD Band n41	Max allowed power	24.5	21.0	24.5	24.5	24.5
	Nominal	23.5	20.0	23.5	23.5	23.5

Note:

- For NR TDD, the powers indicated above are TDD burst average values.
- n41 RCV power reduction is only applicable for HAC purposes.

FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset	Page 4 of 25	




1.4 Miscellaneous SAR Test Considerations

NR implementation of n71, n5, n66, n2, and n41 is limited to EN-DC operations only, with LTE Bands 2/7/66/5/12/13/30/48/25/41 acting as the anchor bands. Please refer to RF Exposure Technical Report S/N: 1M1910220166-01-R1.A3L for original compliance evaluation.

SAR testing for DFT-s-OFDM $\pi/2$ BPSK was not required since its maximum output power is same as DFT-s-OFDM QPSK and DFT-s-OFDM QPSK was evaluated for RF Exposure Compliance. Please see RF Exposure Technical Report S/N 1M1910220166-01-R1.A3L for complete evaluation.



1.5 Guidance Applied

- FCC KDB Publication 941225 D05v02r04, D05Av01r02
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)

FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset	Page 5 of 25	

2 NR FR1 INFORMATION

NR Information					
Form Factor	Portable Handset				
Frequency Range of each NR transmission band	NR Band n71 (665.5 - 695.5 MHz)				
	NR Band n5 (Cell) (826.5 - 846.5 MHz)				
	NR Band n66 (AWS) (1712.5 - 1777.5 MHz)				
	NR Band n2 (PCS) (1852.5 - 1907.5 MHz)				
	NR Band n41 (2506.02 - 2679.99 MHz)				
Channel Bandwidths	NR Band n71: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	NR Band n5 (Cell): 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	NR Band n66 (AWS): 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	NR Band n2 (PCS): 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	NR Band n41: 20 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz, 90 MHz, 100 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
NR Band n71: 5 MHz	665.5 (133100)		680.5 (136100)		695.5 (139100)
NR Band n71: 10 MHz	668 (133600)		680.5 (136100)		693 (138600)
NR Band n71: 15 MHz	670.5 (134100)		680.5 (136100)		690.5 (138100)
NR Band n71: 20 MHz	673 (134600)		680.5 (136100)		688 (137600)
NR Band n5 (Cell): 5 MHz	826.5 (165300)		836.5 (167300)		846.5 (169300)
NR Band n5 (Cell): 10 MHz	829 (165800)		836.5 (167300)		844 (168800)
NR Band n5 (Cell): 15 MHz	831.5 (166300)		836.5 (167300)		841.5 (168300)
NR Band n5 (Cell): 20 MHz	834 (166800)		836.5 (167300)		839 (167800)
NR Band n66 (AWS): 5 MHz	1712.5 (342500)		1745 (349000)		1777.5 (355500)
NR Band n66 (AWS): 10 MHz	1715 (343000)		1745 (349000)		1775 (355000)
NR Band n66 (AWS): 15 MHz	1717.5 (343500)		1745 (349000)		1772.5 (354500)
NR Band n66 (AWS): 20 MHz	1720 (344000)		1745 (349000)		1770 (354000)
NR Band n2 (PCS): 5 MHz	1852.5 (370500)		1880 (376000)		1907.5 (381500)
NR Band n2 (PCS): 10 MHz	1855 (371000)		1880 (376000)		1905 (381000)
NR Band n2 (PCS): 15 MHz	1857.5 (371500)		1880 (376000)		1902.5 (380500)
NR Band n2 (PCS): 20 MHz	1860 (372000)		1880 (376000)		1900 (380000)
NR Band n41: 20 MHz	2506.02 (501204)	2549.49 (509898)	2592.99 (518598)	2636.49 (527298)	2679.99 (535998)
NR Band n41: 40 MHz	2516.01 (503202)	2567.34 (513468)	N/A	2618.67 (523734)	2670 (534000)
NR Band n41: 50 MHz	2521.02 (504204)		2592.99 (518598)	2664.99 (532998)	
NR Band n41: 60 MHz	2526 (505200)		2592.99 (518598)	2659.98 (531996)	
NR Band n41: 80 MHz	2536.02 (507204)		N/A	2649.99 (529998)	
NR Band n41: 90 MHz	2541 (508200)		N/A	2644.98 (528996)	
NR Band n41: 100 MHz	N/A		2592.99 (518598)	N/A	
NR Band n71/n5/n2/n66 SCS	15 kHz				
NR Band n41 SCS	30 kHz				
Modulations Supported in UL	DFT-s-OFDM: $\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
EN-DC Carrier Aggregation Possible Combinations	Please see the technical description included with the original filing for possible carrier aggregation combinations				
LTE Anchor Bands for NR Band n71	LTE Band 2/7/66				
LTE Anchor Bands for NR Band n5	LTE Band 2/30/66				
LTE Anchor Bands for NR Band n66	LTE Band 5/12/13/48				
LTE Anchor Bands for NR Band n2	LTE Band 5/12/13				
LTE Anchor Bands for NR Band n41	LTE Band 2/25/41/66				

FCC ID: A3LSMG986U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset	Page 6 of 25	

3 RF CONDUCTED POWERS

3.1 NR Conducted Powers 3.1.1 NR Band n71

Table 3-1
NR Band n71 Measured P_{max} for all DSI - 20 MHz Bandwidth

NR Band n71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			136100 (680.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.43	0	0
	1	53	24.63		0
	1	104	24.59		0
	50	0	23.83	0-0.5	0.5
	50	28	24.43	0	0
	50	56	23.93	0-0.5	0.5
DFT-s-OFDM QPSK	100	0	23.95	0-0.5	0.5
	1	1	24.33	0	0
	1	53	24.43		0
	1	104	24.48		0
	50	0	23.36	0-1	1
	50	28	24.45	0	0
DFT-s-OFDM 16QAM	50	56	23.44	0-1	1
	100	0	23.43		1
CP-OFDM QPSK	1	1	22.87	0-1.5	1.5

Note: NR Band n71 at 20 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 3-2
NR Band n71 Measured P_{max} for all DSI - 15 MHz Bandwidth

NR Band n71 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			136100 (680.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.37	0	0
	1	40	24.45		0
	1	77	24.57		0
	36	0	23.92	0-0.5	0.5
	36	22	24.41	0	0
	36	43	23.88	0-0.5	0.5
DFT-s-OFDM QPSK	75	0	23.96	0-0.5	0.5
	1	1	24.36	0	0
	1	40	24.37		0
	1	77	24.47		0
	36	0	23.43	0-1	1
	36	22	24.40	0	0
DFT-s-OFDM 16QAM	36	43	23.40	0-1	1
	75	0	23.47		1
CP-OFDM QPSK	1	1	22.82	0-1.5	1.5

Note: NR Band n71 at 15 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.







FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset	Page 7 of 25	

Table 3-3
NR Band n71 Measured P_{max} for all DSI - 10 MHz Bandwidth

NR Band n71 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			133600 (668 MHz)	136100 (680.5 MHz)	138600 (693 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.91	24.20	24.43	0	0
	1	26	24.08	24.43	24.46		0
	1	50	24.06	24.35	24.45		0
	25	0	23.33	23.71	23.87	0-0.5	0.5
	25	14	23.94	24.27	24.42	0	0
	25	27	23.43	23.68	23.80	0-0.5	0.5
50	0	23.43	23.80	23.89	0.5		
DFT-s-OFDM QPSK	1	1	23.90	24.22	24.33	0	0
	1	26	24.06	24.35	24.39		0
	1	50	24.00	24.38	24.43		0
	25	0	22.88	23.22	23.39	0-1	1
	25	14	23.90	24.25	24.36	0	0
	25	27	22.94	23.26	23.32	0-1	1
50	0	22.93	23.29	23.41	1		
DFT-s-OFDM 16QAM	1	1	23.00	23.31	23.44	0-1	1
CP-OFDM QPSK	1	1	22.53	22.73	22.86	0-1.5	1.5

Table 3-4
NR Band n71 Measured P_{max} for all DSI - 5 MHz Bandwidth

NR Band n71 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			133100 (665.5 MHz)	136100 (680.5 MHz)	139100 (695.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.96	24.41	24.48	0	0
	1	13	24.08	24.37	24.55		0
	1	23	23.87	24.31	24.50		0
	12	0	23.40	23.81	23.92	0-0.5	0.5
	12	7	23.95	24.30	24.52	0	0
	12	13	23.36	23.75	23.92	0-0.5	0.5
25	0	23.38	23.74	23.91	0.5		
DFT-s-OFDM QPSK	1	1	24.00	24.46	24.47	0	0
	1	13	23.92	24.37	24.45		0
	1	23	23.88	24.19	24.46		0
	12	0	22.95	23.30	23.48	0-1	1
	12	7	23.95	24.35	24.45	0	0
	12	13	22.88	23.28	23.42	0-1	1
25	0	22.90	23.31	23.42	1		
DFT-s-OFDM 16QAM	1	1	23.14	23.50	23.52	0-1	1
CP-OFDM QPSK	1	1	22.40	22.83	22.89	0-1.5	1.5

FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 8 of 25

3.1.2

NR Band n5 (Cell)

Table 3-5
NR Band n5 (Cell) Measured P_{max} for all DSI - 20 MHz Bandwidth

NR Band n5 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			167300 (836.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.31	0	0
	1	53	24.55		0
	1	104	24.43		0
	50	0	23.68	0-0.5	0.5
	50	28	24.18	0	0
	50	56	23.72	0-0.5	0.5
DFT-s-OFDM QPSK	100	0	23.71	0-0.5	0.5
	1	1	24.25	0	0
	1	53	24.22		0
	1	104	24.03		0
	50	0	23.21	0-1	1
	50	28	24.18	0	0
DFT-s-OFDM 16QAM	50	56	23.27	0-1	1
	100	0	23.30		1
CP-OFDM QPSK	1	1	23.32	0-1	1
CP-OFDM QPSK	1	1	22.68	0-1.5	1.5

Note: NR Band n5 (Cell) at 20 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 3-6
NR Band n5 (Cell) Measured P_{max} for all DSI - 15 MHz Bandwidth

NR Band n5 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			167300 (836.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.29	0	0
	1	40	24.31		0
	1	77	24.49		0
	36	0	23.58	0-0.5	0.5
	36	22	24.15	0	0
	36	43	23.75	0-0.5	0.5
DFT-s-OFDM QPSK	75	0	23.64	0-0.5	0.5
	1	1	24.23	0	0
	1	40	24.08		0
	1	77	24.32		0
	36	0	23.24	0-1	1
	36	22	24.01	0	0
DFT-s-OFDM 16QAM	36	43	23.08	0-1	1
	75	0	23.28		1
CP-OFDM QPSK	1	1	23.24	0-1	1
CP-OFDM QPSK	1	1	22.70	0-1.5	1.5

Note: NR Band n5 (Cell) at 15 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.




FCC ID: A3LSMG986U	 PCTEST Proud to be part of  element	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset	Page 9 of 25	




Table 3-7
NR Band n5 (Cell) Measured P_{max} for all DSI - 10 MHz Bandwidth

NR Band n5 10 MHz Bandwidth						
Modulation	RB Size	RB Offset	Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
			167300 (836.5 MHz)	Conducted Power [dBm]		
DFT-s-OFDM $\pi/2$ BPSK	1	1		24.33	0	0
	1	26		24.41		0
	1	50		24.37		0
	25	0		23.75	0-0.5	0.5
	25	14		24.16	0	0
	25	27		23.59	0-0.5	0.5
DFT-s-OFDM QPSK	50	0		23.69	0-0.5	0.5
	1	1		24.35	0	0
	1	26		24.20		0
	1	50		24.21		0
	25	0		23.07	0-1	1
	25	14		24.02	0	0
25	27		23.03	0-1	1	
50	0		23.24	0-1	1	
DFT-s-OFDM 16QAM	1	1		23.19	0-1	1
CP-OFDM QPSK	1	1		22.73	0-1.5	1.5

Note: NR Band n5 (Cell) at 10 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 3-8
NR Band n5 (Cell) Measured P_{max} for all DSI - 5 MHz Bandwidth

NR Band n5 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			165300 (826.5 MHz)	167300 (836.5 MHz)	169300 (846.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.21	24.45	24.47	0	0
	1	13	24.12	24.38	24.62		0
	1	23	24.22	24.47	24.49		0
	12	0	23.55	23.75	23.89	0-0.5	0.5
	12	7	24.07	24.12	24.42	0	0
	12	13	23.53	23.64	23.94	0-0.5	0.5
	25	0	23.47	23.66	23.87		0.5
DFT-s-OFDM QPSK	1	1	24.13	24.17	24.45	0	0
	1	13	24.17	24.22	24.37		0
	1	23	24.12	24.02	24.14		0
	12	0	23.16	23.16	23.42	0-1	1
	12	7	24.05	24.14	24.35	0	0
	12	13	23.11	23.22	23.46	0-1	1
25	0	23.12	23.18	23.51	1		
DFT-s-OFDM 16QAM	1	1	23.02	23.15	23.51	0-1	1
CP-OFDM QPSK	1	1	22.57	22.66	22.96	0-1.5	1.5

FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 10 of 25

3.1.3

NR Band n66 (AWS)

Table 3-9

NR Band n66 (AWS) Measured P_{max} for DSI = 0 (Body-worn, or Phablet with grip sensor not triggered), or DSI = 2 (Head) - 20 MHz Bandwidth

NR Band n66 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			344000 (1720 MHz)	349000 (1745 MHz)	354000 (1770 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.69	23.46	23.62	0	0
	1	53	23.71	23.51	23.65		0
	1	104	23.59	23.32	23.46		0
	50	0	23.13	22.82	22.94	0-0.5	0.5
	50	28	23.39	23.23	23.35	0	0
	50	56	23.05	22.78	22.96	0-0.5	0.5
DFT-s-OFDM QPSK	100	0	22.96	22.80	22.95	0-0.5	0.5
	1	1	23.53	23.26	23.00	0	0
	1	53	23.49	23.27	23.36		0
	1	104	23.17	23.22	23.35		0
	50	0	22.46	22.24	22.14	0-1	1
	50	28	23.41	23.20	23.32	0	0
50	56	22.38	22.23	22.28	0-1	1	
DFT-s-OFDM 16QAM	100	0	22.44	22.32	22.31	0-1	1
CP-OFDM QPSK	1	1	22.41	22.26	22.01	0-1	1
	1	1	22.17	21.97	21.55	0-1.5	1.5

Table 3-10

NR Band n66 (AWS) Measured P_{max} for DSI = 0 (Body-worn, or Phablet with grip sensor not triggered), or DSI = 2 (Head) - 15 MHz Bandwidth

NR Band n66 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			343500 (1717.5 MHz)	349000 (1745 MHz)	354500 (1772.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.68	23.63	23.45	0	0
	1	40	23.63	23.55	23.29		0
	1	77	23.62	23.54	23.49		0
	36	0	23.12	23.02	22.91	0-0.5	0.5
	36	22	23.43	23.39	23.24	0	0
	36	43	23.02	22.94	22.96	0-0.5	0.5
DFT-s-OFDM QPSK	75	0	23.10	23.03	22.97	0-0.5	0.5
	1	1	23.56	23.53	23.07	0	0
	1	40	23.51	23.48	23.31		0
	1	77	23.47	23.35	23.37		0
	36	0	22.49	22.54	22.32	0-1	1
	36	22	23.44	23.37	23.36	0	0
DFT-s-OFDM 16QAM	36	43	22.46	22.44	22.25	0-1	1
	75	0	22.48	22.47	22.30	0-1	1
CP-OFDM QPSK	1	1	22.35	22.40	22.10	0-1	1
	1	1	22.02	22.01	21.75	0-1.5	1.5




FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 11 of 25

Table 3-11

NR Band n66 (AWS) Measured P_{max} for DSI = 0 (Body-worn, or Phablet with grip sensor not triggered), or DSI = 2 (Head) - 10 MHz Bandwidth

NR Band n66 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			343000 (1715 MHz)	349000 (1745 MHz)	355000 (1775 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.62	23.56	23.44	0	0
	1	26	23.71	23.72	23.58		0
	1	50	23.57	23.61	23.44		0
	25	0	23.06	23.15	22.92	0-0.5	0.5
	25	14	23.45	23.49	23.31	0	0
	25	27	23.02	23.06	22.85	0-0.5	0.5
DFT-s-OFDM QPSK	1	1	23.53	23.53	23.02	0	0
	1	26	23.52	23.54	23.41		0
	1	50	23.47	23.57	23.36		0
	25	0	22.43	22.46	22.33	0-1	1
	25	14	23.46	23.50	23.28	0	0
	25	27	22.41	22.46	22.20	0-1	1
DFT-s-OFDM 16QAM	1	1	22.41	22.40	22.07	0-1	1
CP-OFDM QPSK	1	1	22.34	22.11	21.58	0-1.5	1.5

Table 3-12

NR Band n66 (AWS) Measured P_{max} for DSI = 0 (Body-worn, or Phablet with grip sensor not triggered), or DSI = 2 (Head) - 5 MHz Bandwidth

NR Band n66 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			342500 (1712.5 MHz)	349000 (1745 MHz)	355500 (1777.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.67	23.49	23.46	0	0
	1	13	23.71	23.57	23.45		0
	1	23	23.55	23.62	23.46		0
	12	0	23.06	22.98	22.82	0-0.5	0.5
	12	7	23.48	23.38	23.37	0	0
	12	13	23.08	23.02	22.78	0-0.5	0.5
DFT-s-OFDM QPSK	25	0	22.98	23.01	22.83	0-0.5	0.5
	1	1	23.45	23.44	23.33	0	0
	1	13	23.57	23.56	23.27		0
	1	23	23.51	23.41	23.28		0
	12	0	22.45	22.42	22.21	0-1	1
	12	7	23.42	23.40	23.28	0	0
DFT-s-OFDM 16QAM	12	13	22.41	22.42	22.31	0-1	1
	25	0	22.33	22.39	22.15		0-1
CP-OFDM QPSK	1	1	22.46	22.39	22.27	0-1	1
CP-OFDM QPSK	1	1	22.03	22.07	21.89	0-1.5	1.5




FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 12 of 25

Table 3-13

NR Band n66 (AWS) Measured P_{limit} for DSI = 1 (Phablet with grip sensor active), DSI = 3 (Hotspot mode), and/or DSI = 4 (Earjack active) - 20 MHz Bandwidth

NR Band n66 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			344000 (1720 MHz)	349000 (1745 MHz)	354000 (1770 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	19.48	19.60	19.33	0	0
	1	53	19.47	19.62	19.37		0
	1	104	19.34	19.46	19.25		0
	50	0	19.33	19.40	19.17	0-0.5	0
	50	28	19.27	19.37	19.13	0	0
	50	56	19.22	19.34	19.11	0-0.5	0
DFT-s-OFDM QPSK	100	0	19.25	19.29	19.07	0-0.5	0
	1	1	19.39	19.41	19.22	0	0
	1	53	19.32	19.35	19.12		0
	1	104	19.20	19.31	19.13		0
	50	0	19.27	19.43	19.18	0-1	0
	50	28	19.23	19.33	19.15	0	0
50	56	19.22	19.29	19.13	0-1	0	
DFT-s-OFDM 16QAM	100	0	19.29	19.32	19.12	0-1	0
CP-OFDM QPSK	1	1	19.49	19.35	19.15	0-1	0
	1	1	19.34	19.51	19.30	0-1.5	0

Table 3-14

NR Band n66 (AWS) Measured P_{limit} for DSI = 1 (Phablet with grip sensor active), DSI = 3 (Hotspot mode), and/or DSI = 4 (Earjack active) - 15 MHz Bandwidth

NR Band n66 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			343500 (1717.5 MHz)	349000 (1745 MHz)	354500 (1772.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	19.46	19.58	19.32	0	0
	1	40	19.40	19.54	19.26		0
	1	77	19.47	19.58	19.33		0
	36	0	19.39	19.51	19.28	0-0.5	0
	36	22	19.43	19.46	19.23	0	0
	36	43	19.42	19.46	19.28	0-0.5	0
DFT-s-OFDM QPSK	75	0	19.46	19.55	19.28	0-0.5	0
	1	1	19.61	19.51	19.37	0	0
	1	40	19.39	19.46	19.16		0
	1	77	19.63	19.34	19.30		0
	36	0	19.45	19.57	19.25	0-1	0
	36	22	19.43	19.50	19.25	0	0
36	43	19.45	19.49	19.28	0-1	0	
DFT-s-OFDM 16QAM	75	0	19.49	19.52	19.21	0-1	0
CP-OFDM QPSK	1	1	19.43	19.62	19.31	0-1	0
	1	1	19.46	19.78	19.33	0-1.5	0




FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 13 of 25

Table 3-15




NR Band n66 (AWS) Measured P_{limit} for DSI = 1 (Phablet with grip sensor active), DSI = 3 (Hotspot mode), and/or DSI = 4 (Earjack active) - 10 MHz Bandwidth

NR Band n66 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			343000 (1715 MHz)	349000 (1745 MHz)	355000 (1775 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	19.28	19.28	19.22	0	0
	1	26	19.35	19.32	19.10		0
	1	50	19.28	19.27	18.94		0
	25	0	19.23	19.25	18.97	0-0.5	0
	25	14	19.26	19.31	19.07	0	0
	25	27	19.23	19.25	18.99	0-0.5	0
DFT-s-OFDM QPSK	1	1	19.25	19.39	19.08	0	0
	1	26	19.32	19.41	19.13		0
	1	50	19.35	19.29	19.08		0
	25	0	19.22	19.29	19.06	0-1	0
	25	14	19.30	19.31	19.05	0	0
	25	27	19.21	19.29	19.05	0-1	0
DFT-s-OFDM 16QAM	1	1	19.41	19.56	19.17	0-1	0
CP-OFDM QPSK	1	1	19.42	19.48	19.25	0-1.5	0

Table 3-16

NR Band n66 (AWS) Measured P_{limit} for DSI = 1 (Phablet with grip sensor active), DSI = 3 (Hotspot mode), and/or DSI = 4 (Earjack active) - 5 MHz Bandwidth

NR Band n66 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			342500 (1712.5 MHz)	349000 (1745 MHz)	355500 (1777.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	19.28	19.32	19.12	0	0
	1	13	19.30	19.40	18.98		0
	1	23	19.23	19.32	19.05		0
	12	0	19.25	19.33	19.08	0-0.5	0
	12	7	19.25	19.28	19.04	0	0
	12	13	19.17	19.27	18.95	0-0.5	0
DFT-s-OFDM QPSK	1	1	19.30	19.41	19.10	0	0
	1	13	19.27	19.30	19.12		0
	1	23	19.24	19.32	19.14		0
	12	0	19.30	19.28	19.02	0-1	0
	12	7	19.26	19.35	19.08	0	0
	12	13	19.25	19.41	19.01	0-1	0
DFT-s-OFDM 16QAM	1	1	19.20	19.35	19.12	0-1	0
CP-OFDM QPSK	1	1	19.34	19.41	19.22	0-1.5	0

FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 14 of 25

3.1.4

NR Band n2 (PCS)

Table 3-17
NR Band n2 (PCS) Measured P_{max} for DSI = 0 (Body-worn, or Phablet with grip sensor not triggered), or DSI = 2 (Head) - 20 MHz Bandwidth

NR Band n2 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			372000 (1860 MHz)	376000 (1880 MHz)	380000 (1900 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.63	23.28	23.65	0	0
	1	53	23.30	23.61	23.88		0
	1	104	23.54	23.28	23.90		0
	50	0	23.00	22.89	23.44	0-0.5	0.5
	50	28	23.46	23.41	23.87	0	0
	50	56	22.96	22.76	23.32	0-0.5	0.5
DFT-s-OFDM QPSK	100	0	22.93	22.78	23.35	0-0.5	0.5
	1	1	23.52	23.51	23.96	0	0
	1	53	23.54	23.47	23.85		0
	1	104	23.49	23.45	23.67		0
	50	0	22.43	22.42	23.03	0-1	1
	50	28	23.41	23.41	23.87	0	0
50	56	22.46	22.37	22.92	0-1	1	
DFT-s-OFDM 16QAM	100	0	22.55	22.41	22.97	0-1	1
CP-OFDM QPSK	1	1	22.78	22.43	23.25	0-1	1
	1	1	21.94	22.21	22.63	0-1.5	1.5

Table 3-18
NR Band n2 (PCS) Measured P_{max} for DSI = 0 (Body-worn, or Phablet with grip sensor not triggered), or DSI = 2 (Head) - 15 MHz Bandwidth

NR Band n2 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			371500 (1857.5 MHz)	376000 (1880 MHz)	380500 (1902.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.41	23.46	24.10	0	0
	1	40	23.43	23.39	24.00		0
	1	77	23.53	23.42	24.11		0
	36	0	22.98	22.99	23.52	0-0.5	0.5
	36	22	23.42	23.37	23.94	0	0
	36	43	22.91	22.89	23.41	0-0.5	0.5
DFT-s-OFDM QPSK	75	0	22.98	22.91	23.49	0-0.5	0.5
	1	1	23.17	23.45	24.00	0	0
	1	40	23.48	23.41	23.91		0
	1	77	23.50	23.37	23.66		0
	36	0	22.42	22.45	22.99	0-1	1
	36	22	23.44	23.36	23.93	0	0
36	43	22.45	22.40	22.93	0-1	1	
DFT-s-OFDM 16QAM	75	0	22.46	22.42	23.23	0-1	1
CP-OFDM QPSK	1	1	22.23	22.77	22.72	0-1	1
	1	1	21.89	21.98	22.82	0-1.5	1.5




FCC ID: A3LSMG986U	 PCTEST Proud to be part of  element	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 15 of 25

Table 3-19
NR Band n2 (PCS) Measured P_{max} for DSI = 0 (Body-worn, or Phablet with grip sensor not triggered), or DSI = 2 (Head) - 10 MHz Bandwidth

NR Band n2 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			371000 (1855 MHz)	376000 (1880 MHz)	381000 (1905 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.45	23.20	23.67	0	0
	1	26	23.36	23.36	23.82		0
	1	50	23.29	23.25	23.82		0
	25	0	22.78	22.70	23.23	0-0.5	0.5
	25	14	23.30	23.35	23.72	0	0
	25	27	22.75	22.68	23.24	0-0.5	0.5
DFT-s-OFDM QPSK	1	1	23.33	23.26	23.81	0	0
	1	26	23.33	23.31	23.87		0
	1	50	23.36	23.20	23.40		0
	25	0	22.32	22.25	22.71	0-1	1
	25	14	23.35	23.27	23.73	0	0
	25	27	22.36	22.19	22.64	0-1	1
DFT-s-OFDM 16QAM	1	1	22.26	22.63	22.64	0-1	1
CP-OFDM QPSK	1	1	21.67	21.87	22.32	0-1.5	1.5

Table 3-20
NR Band n2 (PCS) Measured P_{max} for DSI = 0 (Body-worn, or Phablet with grip sensor not triggered), or DSI = 2 (Head) - 5 MHz Bandwidth

NR Band n2 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			370500 (1852.5 MHz)	376000 (1880 MHz)	381500 (1907.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	22.96	23.16	23.49	0	0
	1	13	23.30	23.15	23.91		0
	1	23	23.19	23.12	23.78		0
	12	0	22.70	22.60	23.28	0-0.5	0.5
	12	7	23.30	23.09	23.75	0	0
	12	13	22.72	22.56	23.12	0-0.5	0.5
DFT-s-OFDM QPSK	1	1	23.42	23.14	23.67	0	0
	1	13	23.53	23.02	23.70		0
	1	23	23.41	23.08	23.63		0
	12	0	22.22	22.13	22.73	0-1	1
	12	7	23.30	22.83	23.69	0	0
	12	13	22.21	22.11	22.65	0-1	1
DFT-s-OFDM 16QAM	1	1	22.00	21.94	22.63	0-1	1
CP-OFDM QPSK	1	1	21.63	21.87	21.97	0-1.5	1.5




FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 16 of 25

Table 3-21

NR Band n2 (PCS) Measured P_{limit} for DSI = 1 (Phablet with grip sensor active), DSI = 3 (Hotspot mode), and/or DSI = 4 (Earjack active) - 20 MHz Bandwidth

NR Band n2 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			372000 (1860 MHz)	376000 (1880 MHz)	380000 (1900 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	19.01	18.96	18.93	0	0
	1	53	18.99	19.00	18.80		0
	1	104	18.95	18.75	18.83		0
	50	0	18.94	18.88	18.82	0-0.5	0
	50	28	18.92	18.81	18.69	0	0
	50	56	18.91	18.84	18.66	0-0.5	0
DFT-s-OFDM QPSK	100	0	18.96	18.84	18.82	0	0
	1	1	18.92	18.92	18.80	0	0
	1	53	18.62	19.10	19.12		0
	1	104	18.88	18.78	18.86		0
	50	0	18.89	18.83	18.82	0-1	0
	50	28	18.92	18.81	18.79	0	0
50	56	19.01	18.82	18.74	0-1	0	
DFT-s-OFDM 16QAM	100	0	18.90	18.88	18.82	0-1	0
CP-OFDM QPSK	1	1	18.55	18.57	18.94	0-1	0
	1	1	18.81	18.84	18.90	0-1.5	0

Table 3-22

NR Band n2 (PCS) Measured P_{limit} for DSI = 1 (Phablet with grip sensor active), DSI = 3 (Hotspot mode), and/or DSI = 4 (Earjack active) - 15 MHz Bandwidth

NR Band n2 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			371500 (1857.5 MHz)	376000 (1880 MHz)	380500 (1902.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	18.89	18.76	19.03	0	0
	1	40	19.03	18.77	18.93		0
	1	77	18.99	18.84	18.97		0
	36	0	18.94	18.84	18.87	0-0.5	0
	36	22	18.92	18.75	18.82	0	0
	36	43	18.83	18.77	18.82	0-0.5	0
DFT-s-OFDM QPSK	75	0	18.88	18.81	18.83	0	0
	1	1	19.01	18.80	18.97	0	0
	1	40	18.95	18.70	18.80		0
	1	77	18.93	18.74	18.95		0
	36	0	18.98	18.80	18.89	0-1	0
	36	22	18.93	18.72	18.82	0	0
DFT-s-OFDM 16QAM	36	43	18.91	18.71	18.83	0-1	0
	75	0	18.99	18.75	18.84	0-1	0
CP-OFDM QPSK	1	1	18.77	18.68	19.00	0-1	0
	1	1	18.94	18.46	18.85	0-1.5	0




FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 17 of 25

Table 3-23




NR Band n2 (PCS) Measured P_{limit} for DSI = 1 (Phablet with grip sensor active), DSI = 3 (Hotspot mode), and/or DSI = 4 (Earjack active) - 10 MHz Bandwidth

NR Band n2 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			371000 (1855 MHz)	376000 (1880 MHz)	381000 (1905 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	18.88	18.41	18.76	0	0
	1	26	19.03	19.00	18.85		0
	1	50	18.84	18.60	18.73		0
	25	0	18.68	18.54	18.66	0-0.5	0
	25	14	18.65	18.60	18.62	0	0
	25	27	18.65	18.49	18.64	0-0.5	0
DFT-s-OFDM QPSK	1	1	18.52	18.58	18.70	0	0
	1	26	18.68	18.66	18.71		0
	1	50	18.60	18.55	18.59		0
	25	0	18.72	18.45	18.59	0-1	0
	25	14	18.73	18.55	18.66	0	0
	25	27	18.64	18.43	18.66	0-1	0
DFT-s-OFDM 16QAM	1	1	18.26	18.61	18.73	0-1	0
CP-OFDM QPSK	1	1	18.77	18.60	18.46	0-1.5	0

Table 3-24

NR Band n2 (PCS) Measured P_{limit} for DSI = 1 (Phablet with grip sensor active), DSI = 3 (Hotspot mode), and/or DSI = 4 (Earjack active) - 5 MHz Bandwidth

NR Band n2 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			370500 (1852.5 MHz)	376000 (1880 MHz)	381500 (1907.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	18.87	18.52	18.56	0	0
	1	13	19.14	18.53	18.51		0
	1	23	18.81	18.64	18.63		0
	12	0	18.80	18.51	18.56	0-0.5	0
	12	7	18.81	18.51	18.61	0	0
	12	13	18.76	18.45	18.54	0-0.5	0
DFT-s-OFDM QPSK	1	1	18.82	18.53	18.59	0	0
	1	13	18.67	18.57	18.65		0
	1	23	18.72	18.55	18.57		0
	12	0	18.78	18.65	18.61	0-1	0
	12	7	18.82	18.59	18.65	0	0
	12	13	18.82	18.56	18.64	0-1	0
DFT-s-OFDM 16QAM	1	1	18.78	18.87	18.68	0-1	0
CP-OFDM QPSK	1	1	18.74	18.42	18.17	0-1.5	0

FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 18 of 25

3.1.5

NR Band n41

Table 3-25
NR Band n41 Measured P_{max} for all DSI - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth						
Modulation	RB Size	RB Offset	Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz)	Conducted Power [dBm]		
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.23	0	0	
	1	137	24.16		0	
	1	271	23.86		0	
	135	0	23.16	0-0.5	0.5	
	135	69	23.91	0	0	
	135	138	23.17	0-0.5	0.5	
	270	0	23.25	0-0.5	0.5	
DFT-s-OFDM QPSK	1	1	24.41	0	0	
	1	137	24.02		0	
	1	271	23.62		0	
	135	0	23.09	0-1	1	
	135	69	23.74	0	0	
	135	138	22.55	0-1	1	
	270	0	22.86	0-1	1	
DFT-s-OFDM 16QAM	1	1	23.39	0-1	1	
CP-OFDM QPSK	1	1	22.23	0-1.5	1.5	

Note: NR Band n41 at 100 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 3-26
NR Band n41 Measured P_{max} for all DSI - 90 MHz Bandwidth

NR Band n41 90 MHz Bandwidth						
Modulation	RB Size	RB Offset	Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
			508200 (2541 MHz)	528996 (2644.98 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.64	24.21	0	0
	1	123	24.09	24.25		0
	1	243	24.03	24.48		0
	120	0	23.54	23.71	0-0.5	0.5
	120	63	24.24	24.38	0	0
	120	125	23.43	23.72	0-0.5	0.5
	243	0	23.62	23.78	0-0.5	0.5
DFT-s-OFDM QPSK	1	1	23.68	24.17	0	0
	1	123	24.05	24.21		0
	1	243	23.45	23.85		0
	120	0	23.04	23.05	0-1	1
	120	63	23.87	24.00	0	0
	120	125	22.98	23.12	0-1	1
	243	0	23.01	23.09	0-1	1
DFT-s-OFDM 16QAM	1	1	23.23	23.48	0-1	1
CP-OFDM QPSK	1	1	22.39	22.75	0-1.5	1.5



FCC ID: A3LSMG986U	 PCTEST Proud to be part of element	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 19 of 25

Table 3-27
NR Band n41 Measured P_{max} for all DSI - 80 MHz Bandwidth

NR Band n41 80 MHz Bandwidth						
Modulation	RB Size	RB Offset	Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
			507204 (2536.02 MHz)	529998 (2649.99 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.11	24.24	0	0
	1	109	24.20	23.96		0
	1	215	23.96	23.86		0
	108	0	23.63	23.67	0-0.5	0.5
	108	55	24.03	24.11	0	0
	108	109	23.42	23.68	0-0.5	0.5
DFT-s-OFDM QPSK	1	1	23.92	24.23	0	0
	1	109	23.89	24.16		0
	1	215	24.16	24.10		0
	108	0	22.88	22.65	0-1	1
	108	55	24.02	24.22	0	0
	108	109	23.28	23.37	0-1	1
DFT-s-OFDM 16QAM	1	1	22.98	23.19	0-1	1
CP-OFDM QPSK	1	1	22.84	22.72	0-1.5	1.5

Table 3-28
NR Band n41 Measured P_{max} for all DSI - 60 MHz Bandwidth

NR Band n41 60 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			505200 (2526 MHz)	518598 (2592.99 MHz)	531996 (2659.98 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.93	24.32	23.95	0	0
	1	81	23.66	23.72	23.55		0
	1	160	23.98	23.77	24.29		0
	81	0	23.57	23.76	23.57	0-0.5	0.5
	81	41	23.71	23.85	23.76	0	0
	81	81	23.26	23.03	23.58	0-0.5	0.5
DFT-s-OFDM QPSK	162	0	23.66	23.50	23.65	0-0.5	0.5
	1	1	23.89	24.18	24.00	0	0
	1	81	24.03	24.03	24.42		0
	1	160	23.97	23.71	24.31		0
	81	0	23.03	23.03	23.20	0-1	1
	81	41	23.72	23.75	24.02	0	0
DFT-s-OFDM 16QAM	81	81	22.94	22.72	22.98	0-1	1
	162	0	23.01	23.12	22.97		1
CP-OFDM QPSK	1	1	22.70	23.02	22.74	0-1	1
CP-OFDM QPSK	1	1	22.00	22.54	22.61	0-1.5	1.5




FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 20 of 25

Table 3-29
NR Band n41 Measured P_{max} for all DSI - 50 MHz Bandwidth

NR Band n41 50 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			504204 (2521.02 MHz)	518598 (2592.99 MHz)	532998 (2664.99 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.90	24.28	24.16	0	0
	1	67	24.02	23.97	24.18		0
	1	131	23.97	23.88	24.19		0
	64	0	23.56	23.52	23.22	0-0.5	0.5
	64	35	23.95	24.05	24.26	0	0
	64	69	23.55	23.35	23.74	0-0.5	0.5
	128	0	23.56	23.46	23.64		0.5
DFT-s-OFDM QPSK	1	1	24.06	24.37	24.20	0	0
	1	67	24.02	24.03	24.11		0
	1	131	24.03	23.94	24.33		0
	64	0	23.13	23.12	23.05	0-1	1
	64	35	23.97	24.03	24.16	0	0
	64	69	23.06	22.93	22.80	0-1	1
	128	0	23.09	23.02	22.84		1
DFT-s-OFDM 16QAM	1	1	23.07	23.19	23.04	0-1	1
CP-OFDM QPSK	1	1	22.40	22.66	22.62	0-1.5	1.5

Table 3-30
NR Band n41 Measured P_{max} for all DSI - 40 MHz Bandwidth

NR Band n41 40 MHz Bandwidth								
Modulation	RB Size	RB Offset	Channel				MPR Allowed per 3GPP [dB]	MPR Allowed per 3GPP [dB]
			503202 (2516.01 MHz)	513468 (2567.34 MHz)	523734 (2618.67 MHz)	534000 (2670 MHz)		
			Conducted Power [dBm]					
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.40	24.39	24.19	24.45	0	0
	1	53	23.70	23.95	23.71	23.88		0
	1	104	24.37	24.42	24.47	24.40		0
	50	0	24.00	23.96	23.98	23.66	0-0.5	0.5
	50	28	24.33	24.49	24.36	24.48	0	0
	50	56	23.94	23.94	23.97	23.80	0-0.5	0.5
	100	0	23.96	24.00	24.00	23.97		0.5
DFT-s-OFDM QPSK	1	1	24.27	24.34	23.99	23.66	0	0
	1	53	24.42	24.27	24.49	24.44		0
	1	104	24.43	23.99	24.42	24.23		0
	50	0	23.47	23.47	23.27	23.44	0-1	1
	50	28	24.32	24.09	24.36	24.50	0	0
	50	56	23.45	23.25	23.42	23.43	0-1	1
	100	0	23.44	23.45	23.43	23.46		1
DFT-s-OFDM 16QAM	1	1	23.35	23.25	23.29	23.03	0-1	1
CP-OFDM QPSK	1	1	22.71	22.08	22.67	22.91	0-1.5	1.5




FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 21 of 25

Table 3-31
NR Band n41 Measured P_{max} for all DSI - 20 MHz Bandwidth

NR Band n41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Channel					MPR Allowed per 3GPP [dB]	MPR [dB]
			501204 (2506.02 MHz)	509898 (2549.49 MHz)	518598 (2592.99 MHz)	527298 (2636.49 MHz)	535998 (2679.99 MHz)		
			Conducted Power [dBm]						
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.50	24.36	24.42	24.11	24.36	0	0
	1	26	23.90	23.97	23.98	24.12	24.04		0
	1	49	24.33	24.39	23.84	24.13	24.46		0
	25	0	23.93	23.75	23.47	23.98	23.81	0-0.5	0.5
	25	13	24.02	24.41	23.85	24.07	24.22	0	0
	25	26	23.71	23.98	23.09	23.82	23.95	0-0.5	0.5
DFT-s-OFDM QPSK	1	1	24.33	24.26	24.41	24.17	24.03	0	0
	1	26	24.38	24.06	24.25	24.41	23.83		0
	1	49	23.81	24.25	24.31	24.22	24.44		0
	25	0	23.30	23.47	23.22	23.35	23.49	0-1	1
	25	13	24.06	24.33	24.48	24.24	24.35	0	0
	25	26	23.33	23.31	22.66	23.20	23.06	0-1	1
	50	0	23.14	23.37	23.38	23.47	23.47	0-1	1
DFT-s-OFDM 16QAM	1	1	23.35	23.25	23.43	23.29	23.07	0-1	1
CP-OFDM QPSK	1	1	22.97	22.97	22.51	22.84	22.81	0-1.5	1.5

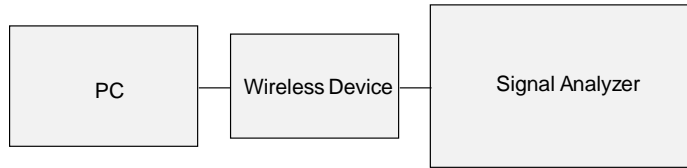





Figure 3-1
Power Measurement Setup

FCC ID: A3LSMG986U	PCTEST Proud to be part of element	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset	Page 22 of 25	

4 EQUIPMENT LIST




Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	N9020A	MXA Signal Analyzer	4/20/2019	Annual	4/20/2020	US46470561
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Pasternack	NC-100	Torque Wrench	5/23/2018	Biennial	5/23/2020	N/A

Note: CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler, or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.



FCC ID: A3LSMG986U	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 23 of 25

5 REFERENCES

- [1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Aug. 1996.
- [2] ANSI/IEEE C95.1-2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, 2006.
- [3] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, Sept. 1992.
- [4] ANSI/IEEE C95.3-2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, December 2002.
- [5] IEEE Standards Coordinating Committee 39 –Standards Coordinating Committee 34 – IEEE Std. 1528-2013, IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.
- [6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for RadioFrequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.
- [7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.
- [8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. 1 -124.
- [9] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.
- [10] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.
- [11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.
- [12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.
- [13] G. Hartsgrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, Canada: 1987, pp. 29-36.
- [14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.
- [15] W. Gander, Computermathematick, Birkhaeuser, Basel, 1992.
- [16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.
- [17] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.

FCC ID: A3LSMG986U	 PCTEST Proud to be part of  element	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset	Page 24 of 25	

- [18] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10kHz-300GHz, Jan. 1995.
- [19] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hochschule Zürich, Dosimetric Evaluation of the Cellular Phone.
- [20] IEC 62209-1, Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1: Devices used next to the ear (Frequency range of 300 MHz to 6 GHz), July 2016.
- [21] Innovation, Science, Economic Development Canada RSS-102 Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 5, March 2015.
- [22] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz – 300 GHz, 2015
- [23] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225, D01-D07
- [24] SAR Measurement Guidance for IEEE 802.11 Transmitters, KDB Publication 248227 D01
- [25] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publications 648474 D03-D04
- [26] FCC SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers, FCC KDB Publication 616217 D04
- [27] FCC SAR Measurement and Reporting Requirements for 100MHz – 6 GHz, KDB Publications 865664 D01-D02
- [28] FCC General RF Exposure Guidance and SAR Procedures for Dongles, KDB Publication 447498, D01-D02
- [29] Anexo à Resolução No. 533, de 10 de Setembro de 2009.
- [30] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz), Mar. 20

FCC ID: A3LSMG986U	 PCTEST <small>Proud to be part of element</small>		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M2003120043-01.A3L	Test Dates: 03/17/20 – 04/04/20	DUT Type: Portable Handset		Page 25 of 25	