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SAR_PD CHAR REPORT

Applicant Name:

SAMSUNG Electronics Co., Ltd.

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Date of Issue: Jan.14, 2022

Test Report No.: HCT-SR-2112-FC007-R1

Test Site: HCT CO., LTD.

FCC ID:

A3LSMA536V

Report Type:

Part 0 SAR Characterization

Equipment Type:

Mobile Phone

Model Name:

SM-A536V

This device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in FCC KDB procedures and had been tested in accordance with the measurement procedures specified in FCC KDB procedures.

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.

Tested By

Moon-pyung Choi
Test Engineer
SAR Team
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Reviewed By

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REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	Jan.09, 2022	Initial Release
1	Jan.14, 2022	Revised Page 8 and Appendix A

This test results were applied only to the test methods required by the standard.

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1. Test Location

1.1 Test Laboratory

Company Name	HCT Co., Ltd.
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1.2 Test Facilities

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

Korea	National Radio Research Agency (Designation No. KR0032)
	KOLAS (Testing No. KT197)

2. DEVICE UNDER TEST

2.1 General Information of the EUT

Device Wireless specification overview		
Band & Mode	Operating Mode	Tx Frequency
GSM850	Voice / Data	824.2 MHz ~ 848.8 MHz
GSM1900	Voice / Data	1 850.2 MHz ~ 1 909.8 MHz
UMTS Band 5	Voice / Data	826.4 MHz ~ 846.6 MHz
UMTS Band 2	Voice / Data	1 852.4 MHz ~ 1 907.6 MHz
LTE Band 2 (PCS)	Voice / Data	1 850.7 MHz ~ 1 909.3 MHz
LTE Band 4 (AWS)	Voice / Data	1 710.7 MHz ~ 1 754.3 MHz
LTE Band 5 (Cell)	Voice / Data	824.7 MHz ~ 848.3 MHz
LTE Band 7	Voice / Data	2 502.5 MHz ~ 2 567.5 MHz
LTE Band 12	Voice / Data	699.7 MHz ~ 715.3 MHz
LTE Band 13	Voice / Data	779.5 MHz ~ 784.5 MHz
LTE TDD Band 48	Voice / Data	3 552.5 MHz ~ 3697.5 MHz
LTE Band 66 (AWS)	Voice / Data	1 710.7 MHz ~ 1 779.3 MHz
NR Band n2	Voice / Data	1 852.5 MHz ~ 1 907.5 MHz
NR Band n5	Voice / Data	826.5 MHz ~ 846.5 MHz
NR Band n66	Voice / Data	1 712.5 MHz ~ 1 777.5 MHz
NR Band n77	Voice / Data	3 710 MHz ~ 3 969.99 MHz
NR Band 77(DoD)	Voice / Data	3 450 MHz ~ 3 550 MHz
NR Band n261	Data	27500 MHz ~ 28350 MHz
NR Band n260	Data	37000 MHz ~ 40000 MHz
U-NII-1	Voice / Data	5 180 MHz ~ 5 240 MHz
U-NII-2A	Voice / Data	5 260 MHz ~ 5 320 MHz
U-NII-2C	Voice / Data	5 500 MHz ~ 5 720 MHz
U-NII-3	Voice / Data	5 745 MHz ~ 5 825 MHz
2.4 GHz WLAN	Voice / Data	2 412 MHz ~ 2 472 MHz
Bluetooth / LE 5.0	Data	2 402 MHz ~ 2 480 MHz
NFC	Data	13.56 MHz

2.2 Introduction of SAR/PD compliance test with TAS algorithm

FCC RF exposure limit is based on time –averaged RF exposure. Both SAR and PD regulatory specifications are defined over certain measurement duration allowing for time-averaging. The Samsung S.LSI proprietary TAS (Time Average SAR) algorithm has been designed to meet the compliance limits over the required duration, while still allowing dynamic control of transmit power to satisfy the performance of the system.

This test report shows SAR and Power density characterization of sub 6 GHz and mmWave. The characterization is achieved by determination of Plimit.

This feature performs time averaging SAR algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time.

The 2G/3G communication mode and WLAN/BT mode are not controlled by The Samsung S.LSI proprietary TAS (Time Average SAR) algorithm.

In the wireless mode of 2G/3G, the output power is not dynamically controlled by the TAS algorithm, but the static Plimit output is applied to comply with the SAR_Target specified by the manufacturer.

The Samsung S.LSI proprietary TAS (Time Average SAR) algorithm controls the output Power within the time window of the radio mode corresponding to each frequency band in real time to meet FCC's TER requirements with 2G/3G/4G/5G and 5G nr FR2 mmwave.

SAR Characterization confirms that Plimit in the 2G/3G/4G/5G communication mode declared by the manufacturer satisfies SAR_target.

PD Characterization is determined by compensating Plimit satisfying PD_target for simulation results and actual deviation based on the Worst case result of simulation in 5GFR2n260/n261 mode of DUT carried out by the manufacturer.

The compliance test under the static transmission scenario and simultaneous transmission analysis are reported in SAR report for Sub 6GHz and PD Report for mmWave. The validation of The Samsung S.LSI proprietary TAS (Time Average SAR) algorithm and compliance under the time- varying transmission scenario for WWAN technologies are reported in TAS Validation report.

Term	Description
Plimit	The Time-averaged RF power that corresponds to SAR_target or PD_target.
Pmax	Maximum Tx power that can be transmitted physically from RFIC for a given RAT.
SAR_target	Target SAR level used in TAS algorithm. This SAR value should be less than FCC limit and should be determined after accounting for all uncertainties and other design considerations.
SAR_FCC_Limit	SAR Limit specified by FCC 1.6 W/kg averaged over 1g, for head and body exposure and 4W/kg averaged over 10g, for Phablet SAR.
PD_target	Target PD level used in TAS algorithm. This PD value should be less than FCC limit and should be determined after accounting for all uncertainties and other design considerations.
PD_FCC_Limit	PD Limit specified by FCC 10 W/m ² averaged over 4cm ² .
SAR Characterization	Characterization of PD value for mmWave technology..
PD Characterization	Characterization of PD value for mmWave technology.

3. SAR CHACTERIZATION.

It should be confirmed that Plimit and SAR_target applied by OEM to device in SAR characterization satisfy within the uncertainty of device through SAR measurement.

3.1 Design target for TAS

SAR_target is determined by ensuring that it is less than FCC SAR limit after accounting for total device designed related uncertainties specified by the manufacturer.

SAR_target			
$SAR_target < FCC_SAR_limit \times 10^{-Total\ Uncertainty/10}$			
1g SAR (W/kg)		10g SAR (W/kg)	
Total Uncertainty	1.0 dB	Total Uncertainty	1.0 dB
FCC_SAR_limit	1.6 W/kg	FCC_SAR_limit	4.0 W/kg
SAR_target	1.0 W/kg	SAR_target	2.5 W/kg

This device use differennt Radio SAR Index[RSI] to configure different Plimit based on certan exposure configurations for each 2G/3G/4G/5G wireless mode

Radio SAR Index (RSI)	Configuration
0	1.. Body Worn SAR 2. Phablet SAR measured at Maximum Power 3. Phablet SAR measured at 11, 7 and 13 mm spacing for back, front, bottom respectively 4. Phablet SAR measured at 0 mm for Top,Left and Right left and right surfaces
1	Head SAR conditions in wireless mode.
2	Hotspot SAR conditions in wireless mode. at 10 mm
3&4	<i>Phablet SAR condition in which the grip sensor in the wireless mode is activated..</i> at 0 mm for back, front, and bottom surfaces. Ear jack inseted mode.

The SAR measurement results for each RSI in 2G/3G/4G/5G mode are included in Appendix A, and it can be seen that all Plimit outputs declared by the manufacturer are measured within SAR_Target

SAR_Target- specified by the manufacturer

SAR_Target [W/kg] For S.LSI TAS Algorithm									Uncertainty
SAR Exposure Configuration			Body Worn SAR Max Power	Phablet SAR Max Power	Phablet SAR Grip ON	Head SAR RCV-ON	Hotspot SAR (10mm)	EarJack	
Averaging volume			1g	10g	10g	1g	1g	10g	dB
Mode	Band	Antenna	RSI=0	RSI=0	RSI=3	RSI=1	RSI=2	RSI=4	
GSM 1-slot	850	Main#1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
GSM 2-slot	850								1.0
GSM 3-slot	850								1.0
GSM 4-slot	850								1.0
GSM 1-slot	1900	Main#1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
GSM 2-slot	1900								1.0
GSM 3-slot	1900								1.0
GSM 4-slot	1900								1.0
WCDMA	5	Main 1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
WCDMA	2	Main 1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
LTE FDD	12	Main 1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
LTE FDD	13	Main 1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
LTE FDD	5	Main 1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
LTE FDD	66	Main 1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
LTE FDD	4	Main 1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
LTE FDD	2	Main 1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
LTE FDD	7	Main 2	1.0	2.5	2.5	1.0	1.0	2.5	1.0
LTE TDD	48	Sub 3	1.0	2.5	2.5	1.0	1.0	2.5	1.0
NR FDD	n2	Main 1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
NR FDD	n5	Main 1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
NR FDD	n66	Main 1	1.0	2.5	2.5	1.0	1.0	2.5	1.0
NR TDD	n77 DoD[PC3]	Sub 3	1.0	2.5	2.5	1.0	1.0	2.5	1.0
NR TDD	n77 [PC]	Sub 3	1.0	2.5	2.5	1.0	1.0	2.5	1.0
NR TDD	n77 DoD[PC2]	Sub 3	1.0	2.5	2.5	1.0	1.0	2.5	1.0
NR TDD	n77 [PC2]	Sub 3	1.0	2.5	2.5	1.0	1.0	2.5	1.0

Pmax and Pimit (Frequency < 6GHz) specified by the manufacturer

			Plimit (all values are time averaged)						Pmax		
SAR Exposure Position			Max Power body Worn	Max Power Phablet SAR	Grip ON Phablet	RCV-ON Head	Hotspot (10mm)	EarJack	Burst Averaged Power	UL:DL Ratio	Uncertainty
Averaging volume			1g	10g	10g	1g	1g	10g			
Mode	Band	Antenna	RSI=0	RSI=0	RSI=3	RSI=1	RSI=2	RSI=4	[dBm]		[dB]
GSM 1-slot	850	Main#1	23.7	23.7	23.7	23.7	23.7	23.7	32.5	12.5%	1.0
GSM 2-slot	850								29.5	25.0%	1.0
GSM 3-slot	850								28.0	37.5%	1.0
GSM 4-slot	850								26.5	50.0%	1.0
GSM 1-slot	1900	Main#1	20.5	20.5	17.5	20.5	17.5	17.5	29.5	12.5%	1.0
GSM 2-slot	1900								26.5	25.0%	1.0
GSM 3-slot	1900								24.3	37.5%	1.0
GSM 4-slot	1900								23.5	50.0%	1.0
WCDMA	5	Main 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	100.0%	1.0
WCDMA	2	Main 1	24.0	24.0	21.0	24.0	21.0	21.0	24.0	100.0%	1.0
LTE FDD	12	Main 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	100.0%	1.0
LTE FDD	13	Main 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	100.0%	1.0
LTE FDD	5	Main 1	23.7	23.7	23.7	23.7	23.7	23.7	23.7	100.0%	1.0
LTE FDD	66	Main 1	23.3	23.3	19.0	23.3	19.0	19.0	23.3	100.0%	1.0
LTE FDD	4	Main 1	23.3	23.3	19.0	23.3	19.0	19.0	23.3	100.0%	1.0
LTE FDD	2	Main 1	23.5	23.5	20.5	23.5	20.5	20.5	23.5	100.0%	1.0
LTE FDD	7	Main 2	23.0	23.0	20.0	23.0	20.0	20.0	23.0	100.0%	1.0
LTE TDD	48	Sub 3	20.5	20.5	20.5	16.0	16.0	16.0	22.5	63.3%	1.0
NR FDD	n2	Main 1	23.0	23.0	20.0	23.0	20.0	20.0	23.0	100.0%	1.0
NR FDD	n5	Main 1	23.5	23.5	23.5	23.5	23.5	23.5	23.5	100.0%	1.0
NR FDD	n66	Main 1	23.0	23.0	19.0	23.0	19.0	19.0	23.0	100.0%	1.0
NR TDD	n77 DoD[PC3]	Sub 3	17.5	17.5	17.5	17.5	17.5	17.5	24.0	100.0%	1.0
NR TDD	n77 [PC3]	Sub 3	17.5	17.5	17.5	17.5	17.5	17.5	24.0	100.0%	1.0
NR TDD	n77 DoD[PC2]	Sub 3	17.5	17.5	17.5	17.5	17.5	17.5	25.5	50.0%	1.0
NR TDD	n77 [PC2]	Sub 3	17.5	17.5	17.5	17.5	17.5	17.5	25.5	50.0%	1.0

Note :

- All Plimit levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (for e.g., GSM/LTE TDD/NR TDD).
- The Pmax of GSM/LTE TDD/NR TDD was written as burst averaged power

4. PD CHARACTERIZATION

PD Characterization is based on the result of the Worst case of simulation in 5GFR2n260/n261 mode carried out by the manufacturer, and a limit that satisfies the PD_target reflecting the deviation between the simulation and the actual measurement is determined.

PD_target is determined by ensuring that it is less than FCC PD limit after accounting for total device design uncertainties and specified by the manufacturer

$PD_target < FCC_PD_limit \times 10^{-Total\ Uncertainty/10}$	
Total Uncertainty	2.3 dB
FCC_PD_limit	1.0 mW/cm ² (averaged over 4 cm ² area)
PD_target (Declared by the manufacturer.	0.442 mW/cm ²

4.1 Codebook for all supported beams

n261 Ant L Codebook

Band	Beam ID	Antenna	Ant_Type	Paired_With	# of Antenna Feed
n261	0	L	PATCH	7	5
	1			8	5
	2			9	5
	3			10	5
	4			11	5
	5			12	5
	6			13	5
	7			0	5
	8			1	5
	9			2	5
	10			3	5
	11			4	5
	12			5	5
	13			6	5

n260 Ant L Codebook

Band	Beam ID	Antenna	Ant_Type	Paired_With	# of Antenna Feed
n260	0	L	PATCH	7	5
	1			8	5
	2			9	5
	3			10	5
	4			11	5
	5			12	5
	6			13	5
	7			0	5
	8			1	5
	9			2	5
	10			3	5
	11			4	5
	12			5	5
	13			6	5

4.1 Plimit by PD_target specified by the manufacturer

5G NR n261 L Patch Plimit

Antenna	Beam ID_1	Beam ID_2	Input.power.limit (dBm)
L Patch	0		15.6
	1		14.3
	2		13.6
	3		14.0
	4		14.4
	5		13.7
	6		13.7
		7	12.3
		8	11.1
		9	11.1
		10	10.9
		11	10.7
		12	10.6
		13	10.8
	0	7	9.4
	1	8	8.6
	2	9	8.8
	3	10	9.2
	4	11	9.2
	5	12	8.4
	6	13	8.8

5G NR n260 L Patch Plimit

Antenna	Beam ID_1	Beam ID_2	Input.power.limit (dBm)
L Patch	0		15.6
	1		16.0
	2		14.9
	3		14.4
	4		15.3
	5		15.0
	6		15.7
		7	14.6
		8	14.0
		9	13.8
		10	13.1
		11	13.7
		12	13.5
		13	14.8
	0	7	11.3
	1	8	11.2
	2	9	11.0
	3	10	10.7
	4	11	10.9
	5	12	10.4
	6	13	11.0

Appendix A: Results of SAR/PD in Plimit specified by the manufacturer.

Table A-1 RSI= 1 2G/3G Head SAR

MEASUREMENT RESULTS(RSI= 1 2G/3G Head SAR)									
Frequency		Mode/ Band		Frame Averaged Conducted Power	Test Position	Duty Cycle	Meas. SAR(1g)	SAR_target (1g)	Plimit
MHz	Ch.			(dBm)			(1g)	(W/kg)	(dBm)
836.6	190	GSM 850	GPRS 3Tx	23.91	Left Cheek	1:2.77	0.122	1.0	23.7
836.6	190	GSM 850		23.91	Left Tilt	1:2.77	0.082	1.0	23.7
836.6	190	GSM 850		23.91	Right Cheek	1:2.77	0.151	1.0	23.7
836.6	190	GSM 850		23.91	Right Tilt	1:2.77	0.090	1.0	23.7
1 850.2	512	GSM 1900	GPRS 4Tx	20.91	Left Cheek	1:2.07	0.019	1.0	20.5
1 850.2	512	GSM 1900		20.91	Left Tilt	1:2.07	0.016	1.0	20.5
1 850.2	512	GSM 1900		20.91	Right Cheek	1:2.07	0.025	1.0	20.5
1 850.2	512	GSM 1900		20.91	Right Tilt	1:2.07	0.013	1.0	20.5
836.6	4183	UMTS 850	RMC	24.11	Left Cheek	1:1	0.141	1.0	24.0
836.6	4183	UMTS 850	RMC	24.11	Left Tilt	1:1	0.087	1.0	24.0
836.6	4183	UMTS 850	RMC	24.11	Right Cheek	1:1	0.183	1.0	24.0
836.6	4183	UMTS 850	RMC	24.11	Right Tilt	1:1	0.07	1.0	24.0
1 880	9400	UMTS 1900	RMC	24.65	Left Cheek	1:1	0.069	1.0	24.0
1 880	9400	UMTS 1900	RMC	24.65	Left Tilt	1:1	0.048	1.0	24.0
1 880	9400	UMTS 1900	RMC	24.65	Right Cheek	1:1	0.087	1.0	24.0
1 880	9400	UMTS 1900	RMC	24.65	Right Tilt	1:1	0.035	1.0	24.0

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-2 RSI = 1 4G Head SAR

MEASUREMENT RESULTS													
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	SAR_target (1g)	Plimit
Mhz	Ch.			(dBm)	(dBm)		(dB)				(W/kg)	(W/kg)	(dBm)
707.5	23095	LTE Band 12	Mid	10	24.77	Left Cheek	0	1	0	1:1	0.094	1.0	24.0
707.5	23095	LTE Band 12	Mid	10	24.77	Left Tilt	0	1	0	1:1	0.049	1.0	24.0
707.5	23095	LTE Band 12	Mid	10	24.77	Right Cheek	0	1	0	1:1	0.120	1.0	24.0
707.5	23095	LTE Band 12	Mid	10	24.77	Right Tilt	0	1	0	1:1	0.053	1.0	24.0
782.0	23230	LTE Band 13	Mid	10	23.97	Left Cheek	0	1	0	1:1	0.143	1.0	24.0
782.0	23230	LTE Band 13	Mid	10	23.97	Left Tilt	0	1	0	1:1	0.082	1.0	24.0
782.0	23230	LTE Band 13	Mid	10	23.97	Right Cheek	0	1	0	1:1	0.190	1.0	24.0
782.0	23230	LTE Band 13	Mid	10	23.97	Right Tilt	0	1	0	1:1	0.083	1.0	24.0
836.5	20525	LTE Band 5	Mid	10	24.14	Left Cheek	0	1	0	1:1	0.107	1.0	23.7
836.5	20525	LTE Band 5	Mid	10	24.14	Left Tilt	0	1	0	1:1	0.065	1.0	23.7
836.5	20525	LTE Band 5	Mid	10	24.14	Right Cheek	0	1	0	1:1	0.147	1.0	23.7
836.5	20525	LTE Band 5	Mid	10	24.14	Right Tilt	0	1	0	1:1	0.069	1.0	23.7
1 720.0	132072	LTE Band 66	Mid	20	23.78	Left Cheek	0	1	99	1:1	0.064	1.0	23.3
1 720.0	132072	LTE Band 66	Mid	20	23.78	Left Tilt	0	1	99	1:1	0.029	1.0	23.3
1 720.0	132072	LTE Band 66	Mid	20	23.78	Right Cheek	0	1	99	1:1	0.092	1.0	23.3
1 720.0	132072	LTE Band 66	Mid	20	23.78	Right Tilt	0	1	99	1:1	0.04	1.0	23.3
1 900.0	19100	LTE Band 2	Mid	20	23.59	Left Cheek	0	1	49	1:1	0.057	1.0	23.5
1 900.0	19100	LTE Band 2	Mid	20	23.59	Left Tilt	0	1	49	1:1	0.035	1.0	23.5
1 900.0	19100	LTE Band 2	Mid	20	23.59	Right Cheek	0	1	49	1:1	0.067	1.0	23.5
1 900.0	19100	LTE Band 2	Mid	20	23.59	Right Tilt	0	1	49	1:1	0.030	1.0	23.5
2 560.0	21350	LTE Band 7	High	20	22.79	Left Cheek	0	1	49	1:1	0.175	1.0	23.0
2- 560.0	21350	LTE Band 7	High	20	22.79	Left Tilt	0	1	49	1:1	0.053	1.0	23.0
2 560.0	21350	LTE Band 7	High	20	22.79	Right Cheek	0	1	49	1:1	0.066	1.0	23.0
2 560.0	21350	LTE Band 7	High	20	22.79	Right Tilt	0	1	49	1:1	0.086	1.0	23.0
3 560.0	55340	LTE Band 48	High	20	16.62	Left Cheek	0	1	99	1:1.58	0.120	1.0	16.0
3 560.0	55340	LTE Band 48	High	20	16.62	Left Tilt	0	1	99	1:1.58	0.123	1.0	16.0
3 560.0	55340	LTE Band 48	High	20	16.62	Right Cheek	0	1	99	1:1.58	0.596	1.0	16.0
3 560.0	55340	LTE Band 48	High	20	16.62	Right Tilt	0	1	99	1:1.58	0.452	1.0	16.0

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-3 RSI=1 – NR Head SAR

For some bands/modes, a lower *PLimit* was selected as a more conservative evaluation.

NR TDD Bands : In the case of the NR TDD bands, the duty factor =100% was applied to the burst power.SAR measurements of all NR bands were measured in FTM Mode.

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Configurations		MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	SAR_target (1g)	Plimit
MHz	Ch.			(dBm)	(dBm)			(dB)				(W/kg)	(W/kg)	(dBm)
1 860.0	372000	NR Band n2	High	20	23.85	Left Cheek	DFT-s-OFDM QPSK	0	1	53	1:1	0.077	1.0	23.0
1 860.0	372000	NR Band n2	High	20	23.85	Left Tilt	DFT-s-OFDM QPSK	0	1	53	1:1	0.046	1.0	23.0
1 860.0	372000	NR Band n2	High	20	23.85	Right Cheek	DFT-s-OFDM QPSK	0	1	53	1:1	0.092	1.0	23.0
1 860.0	372000	NR Band n2	High	20	23.85	Right Tilt	DFT-s-OFDM QPSK	0	1	53	1:1	0.042	1.0	23.0
836.5	167300	NR Band n5	High	20	24.11	Left Cheek	DFT-s-OFDM QPSK	0	1	53	1:1	0.059	1.0	23.5
836.5	167300	NR Band n5	High	20	24.11	Left Tilt	DFT-s-OFDM QPSK	0	1	53	1:1	0.035	1.0	23.5
836.5	167300	NR Band n5	High	20	24.11	Right Cheek	DFT-s-OFDM QPSK	0	1	53	1:1	0.081	1.0	23.5
836.5	167300	NR Band n5	High	20	24.11	Right Tilt	DFT-s-OFDM QPSK	0	1	53	1:1	0.035	1.0	23.5
1 770.0	354000	NR Band n66	High	20	23.89	Left Cheek	DFT-s-OFDM QPSK	0	1	104	1:1	0.053	1.0	23.0
1 770.0	354000	NR Band n66	High	20	23.89	Left Tilt	DFT-s-OFDM QPSK	0	1	104	1:1	0.045	1.0	23.0
1 770.0	354000	NR Band n66	High	20	23.89	Right Cheek	DFT-s-OFDM QPSK	0	1	104	1:1	0.079	1.0	23.0
1 770.0	354000	NR Band n66	High	20	23.89	Right Tilt	DFT-s-OFDM QPSK	0	1	104	1:1	0.05	1.0	23.0
3 750.0	650000	NR Band 77(PC3)	High	100	17.97	Left Cheek	DFT-s-OFDM QPSK	0	1	271	1:1	0.191	1.0	17.5
3 750.0	650000	NR Band 77(PC3)	High	100	17.97	Left Tilt	DFT-s-OFDM QPSK	0	1	271	1:1	0.215	1.0	17.5
3 750.0	650000	NR Band 77(PC3)	High	100	17.97	Right Cheek	DFT-s-OFDM QPSK	0	1	271	1:1	0.695	1.0	17.5
3 750.0	650000	NR Band 77(PC3)	High	100	17.97	Right Tilt	DFT-s-OFDM QPSK	0	1	271	1:1	0.551	1.0	17.5
3500.01	633334	NR Bandn77(DOD)	High	100	16.74	Left Cheek	DFT-s-OFDM QPSK	0	1	137	1:1	0.221	1.0	17.5
3500.01	633334	NR Bandn77(DOD)	High	100	16.74	Left Tilt	DFT-s-OFDM QPSK	0	1	137	1:1	0.191	1.0	17.5
3500.01	633334	NR Bandn77(DOD)	High	100	16.74	Right Cheek	DFT-s-OFDM QPSK	0	1	137	1:1	0.644	1.0	17.5
3500.01	633334	NR Bandn77(DOD)	High	100	16.74	Right Tilt	DFT-s-OFDM QPSK	0	1	137	1:1	0.583	1.0	17.5

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-4 RSI = 0 - 2G/3G Body-Worn SAR

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Frame Averaged Conducted Power	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g)	SAR_target (1g)	Plimit
Mhz	Ch.			(dBm)				(W/kg)	(W/kg)	(dBm)
836.6	190	GSM 850	GPRS3Tx	23.91	Back	15	1:2.77	0.209	1.0	23.7
836.6	190	GSM 850	GPRS3Tx	23.91	Front	15	1:2.77	0.175	1.0	23.7
1 850.2	512	GSM 1900	GPRS4Tx	20.91	Back	15	1:2.77	0.204	1.0	20.5
1 850.2	512	GSM 1900	GPRS4Tx	20.91	Front	15	1:2.77	0.110	1.0	20.5
836.6	4183	UMTS 850	RMC	24.11	Back	15	1:1	0.296	1.0	24.0
836.6	4183	UMTS 850	RMC	24.11	Front	15	1:1	0.184	1.0	24.0
1 880.0	9400	UMTS 1900	RMC	24.65	Back	15	1:1	0.660	1.0	24.0
1 880.0	9400	UMTS 1900	RMC	24.65	Front	15	1:1	0.363	1.0	24.0

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-5 RSI = 0 - 4G Body-Worn SAR

For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position	Spacing (mm)	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	SAR_target (1g)	Plimit
MHz	Ch.			MHz	(dBm)			(dB)				(W/kg)	(dBm)	(dBm)
707.5	23095	LTE Band 12	Mid	10	24.77	Back	15	0	1	0	1:1	0.244	1.0	24.0
707.5	23095	LTE Band 12	Mid	10	24.77	Front	15	0	1	0	1:1	0.193	1.0	24.0
782.0	23230	LTE Band 13	Mid	10	23.97	Back	15	0	1	0	1:1	0.307	1.0	24.0
782.0	23230	LTE Band 13	Mid	10	23.97	Front	15	0	1	0	1:1	0.284	1.0	24.0
836.5	20525	LTE Band 5	Mid	10	24.14	Back	15	0	1	0	1:1	0.259	1.0	23.7
836.5	20525	LTE Band 5	Mid	10	24.14	Front	15	0	1	0	1:1	0.114	1.0	23.7
1 720.0	132072	LTE Band 66	Mid	20	23.78	Back	15	0	1	99	1:1	0.480	1.0	23.3
1 720.0	132072	LTE Band 66	Mid	20	23.78	Front	15	0	1	99	1:1	0.278	1.0	23.3
1 900.0	19100	LTE Band 2	Mid	20	23.59	Back	15	0	1	49	1:1	0.593	1.0	23.5
1 900.0	19100	LTE Band 2	Mid	20	23.59	Front	15	0	1	49	1:1	0.292	1.0	23.5
2 560.0	21350	LTE Band 7	High	20	22.79	Back	15	0	1	49	1:1	0.205	1.0	23.0
2-560.0	21350	LTE Band 7	High	20	22.79	Front	15	0	1	49	1:1	0.146	1.0	23.0
3 560.0	55340	LTE Band 48	High	20	20.75	Front	15	0	1	49	1:1	0.218	1.0	20.5
3 560.0	55340	LTE Band 48	High	20	20.75	Back	15	0	1	49	1:1	0.140	1.0	20.5

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-6 RSI = 0 - NR Body-Worn SAR

For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

NR TDD Bands : In the case of the NR TDD bands, the P_{limit} , the duty factor =100 was applied to the burst power.

SAR measurements of all NR bands were measured in FTM Mode.

MEASUREMENT RESULTS															
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Configurations		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	SAR_target (1g)	Plimit
													Mhz	Ch.	
1 860.0	372000	NR Band n2	High	20	23.91	Back	DFT-s-OFDM QPSK	0	15	1	53	1:1	0.594	1.0	23.0
1 860.0	372000	NR Band n2	High	20	23.91	Front	DFT-s-OFDM QPSK	0	15	1	53	1:1	0.298	1.0	23.0
836.5	167300	NR Band n5	High	20	24.11	Back	DFT-s-OFDM QPSK	0	15	1	53	1:1	0.139	1.0	23.5
836.5	167300	NR Band n5	High	20	24.11	Front	DFT-s-OFDM QPSK	0	15	1	53	1:1	0.093	1.0	
1 770.0	354000	NR Band n66	High	20	23.89	Back	DFT-s-OFDM QPSK	0	15	1	104	1:1	0.519	1.0	23.0
1 770.0	354000	NR Band n66	High	20	23.89	Front	DFT-s-OFDM QPSK	0	15	1	104	1:1	0.266	1.0	
3 750.0	650000	NR Band77(PC3)	High	100	17.97	Back	DFT-s-OFDM QPSK	0	15	1	271	1:1	0.084	1.0	17.5
3 750.0	650000	NR Band77(PC3)	High	100	17.97	Front	DFT-s-OFDM QPSK	0	15	1	271	1:1	0.052	1.0	
3 500.01	633334	NR Band77(DOD)	High	100	16.74	Back	DFT-s-OFDM QPSK	0	15	1	137	1:1	0.088	1.0	17.5
3 500.01	633334	NR Band77(DOD)	High	100	16.74	Front	DFT-s-OFDM QPSK	0	15	1	137	1:1	0.055	1.0	

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-7 RSI = 2 – 2G/3G Hotspot SAR

For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Frame Averaged Conducted Power	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g)	SAR_target (1g)	Plimit
Mhz	Ch.			(dBm)				(W/kg)	(W/kg)	(dBm)
836.6	190	GSM 850	GPRS 3Tx	23.91	Back	10	1:2.77	0.408	1.0	23.7
836.6	190	GSM 850	GPRS 3Tx	23.91	Front	10	1:2.77	0.237	1.0	
836.6	190	GSM 850	GPRS 3Tx	23.91	Left	10	1:2.77	0.078	1.0	
836.6	190	GSM 850	GPRS 3Tx	23.91	Right	10	1:2.77	0.223	1.0	
836.6	190	GSM 850	GPRS 3Tx	23.91	Bottom	10	1:2.77	0.213	1.0	
1 850.2	512	GSM 1900	GPRS 4Tx	17.84	Back	10	1:2.07	0.252	1.0	17.5
1 850.2	512	GSM 1900	GPRS 4Tx	17.84	Front	10	1:2.07	0.130	1.0	
1 850.2	512	GSM 1900	GPRS 4Tx	17.84	Left	10	1:2.07	0.009	1.0	
1 850.2	512	GSM 1900	GPRS 4Tx	17.84	Right	10	1:2.07	0.023	1.0	
1 850.2	512	GSM 1900	GPRS 4Tx	17.84	Bottom	10	1:2.07	0.351	1.0	
836.6	4183	UMTS 850	RMC	24.11	Back	10	1:1	0.646	1.0	26.0
836.6	4183	UMTS 850	RMC	24.11	Front	10	1:1	0.312	1.0	
836.6	4183	UMTS 850	RMC	24.11	Left	10	1:1	0.056	1.0	
836.6	4183	UMTS 850	RMC	24.11	Right	10	1:1	0.153	1.0	
836.6	4183	UMTS 850	RMC	24.11	Bottom	10	1:1	0.265	1.0	
1 880.0	9400	UMTS 1900	RMC	21.41	Back	10	1:1	0.597	1.0	22.4
1 880.0	9400	UMTS 1900	RMC	21.41	Front	10	1:1	0.327	1.0	
1 880.0	9400	UMTS 1900	RMC	21.41	Left	10	1:1	0.040	1.0	
1 880.0	9400	UMTS 1900	RMC	21.41	Right	10	1:1	0.066	1.0	
1 880.0	9400	UMTS 1900	RMC	21.48	Bottom	10	1:1	0.798	1.0	

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-8 RSI = 2 - - 4G Hotspot SAR

For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position	Spacing (mm)	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	SAR_target (1g)	Plimit
707.5	23095	LTE Band 12	Mid	10	24.77	Back	10	0	1	0	1:1	0.333	1.0	24.0
707.5	23095	LTE Band 12	Mid	10	24.77	Front	10	0	1	0	1:1	0.228	1.0	
707.5	23095	LTE Band 12	Mid	10	24.77	Left	10	0	1	0	1:1	0.124	1.0	
707.5	23095	LTE Band 12	Mid	10	24.77	Right	10	0	1	0	1:1	0.183	1.0	
707.5	23095	LTE Band 12	Mid	10	24.77	Bottom	10	0	1	0	1:1	0.151	1.0	
782.0	23230	LTE Band 13	Mid	10	23.97	Back	10	0	1	0	1:1	0.455	1.0	24.0
782.0	23230	LTE Band 13	Mid	10	23.97	Front	10	0	1	0	1:1	0.323	1.0	
782.0	23230	LTE Band 13	Mid	10	23.97	Left	10	0	1	0	1:1	0.163	1.0	
782.0	23230	LTE Band 13	Mid	10	23.97	Right	10	0	1	0	1:1	0.346	1.0	
782.0	23230	LTE Band 13	Mid	10	23.97	Bottom	10	0	1	0	1:1	0.232	1.0	
836.5	20525	LTE Band 5	Mid	10	24.14	Back	10	0	1	0	1:1	0.500	1.0	23.7
836.5	20525	LTE Band 5	Mid	10	24.14	Front	10	0	1	0	1:1	0.266	1.0	
836.5	20525	LTE Band 5	Mid	10	24.14	Left	10	0	1	0	1:1	0.082	1.0	
836.5	20525	LTE Band 5	Mid	10	24.14	Right	10	0	1	0	1:1	0.219	1.0	
836.5	20525	LTE Band 5	Mid	10	24.14	Bottom	10	0	1	0	1:1	0.284	1.0	
1 720.0	132072	LTE Band 66	Mid	20	19.24	Back	10	0	1	99	1:1	0.581	1.0	19.0
1 720.0	132072	LTE Band 66	Mid	20	19.24	Front	10	0	1	99	1:1	0.343	1.0	
1 720.0	132072	LTE Band 66	Mid	20	19.24	Left	10	0	1	99	1:1	0.077	1.0	
1 720.0	132072	LTE Band 66	Mid	20	19.24	Right	10	0	1	99	1:1	0.063	1.0	
1 720.0	132072	LTE Band 66	Mid	20	19.24	Bottom	10	0	1	99	1:1	0.907	1.0	
1 900.0	19100	LTE Band 2	Mid	20	20.68	Back	10	0	1	99	1:1	0.610	1.0	20.5
1 900.0	19100	LTE Band 2	Mid	20	20.68	Front	10	0	1	99	1:1	0.365	1.0	
1 900.0	19100	LTE Band 2	Mid	20	20.68	Left	10	0	1	99	1:1	0.036	1.0	
1 900.0	19100	LTE Band 2	Mid	20	20.68	Right	10	0	1	99	1:1	0.075	1.0	
1 900.0	19100	LTE Band 2	Mid	20	20.68	Bottom	10	0	1	99	1:1	0.826	1.0	
2 560.0	21350	LTE Band 7	High	20	20.56	Back	10	0	1	0	1:1	0.216	1.0	20.0
2- 560.0	21350	LTE Band 7	High	20	20.56	Front	10	0	1	0	1:1	0.188	1.0	
2 560.0	21350	LTE Band 7	High	20	20.56	Left	10	0	1	0	1:1	0.130	1.0	
2 560.0	21350	LTE Band 7	High	20	20.56	Right	10	0	1	0	1:1	0.039	1.0	
2 560.0	21350	LTE Band 7	High	20	20.56	Bottom	10	0	1	0	1:1	0.405	1.0	
3 560.0	55340	LTE Band 48	High	20	16.67	Back	10	0	1	99	1:1	0.121	1.0	16.0
3 560.0	55340	LTE Band 48	High	20	16.67	Front	10	0	1	99	1:1	0.103	1.0	
3 560.0	55340	LTE Band 48	High	20	16.67	Left	10	0	1	99	1:1	0.355	1.0	
3 560.0	55340	LTE Band 48	High	20	16.67	Top	10	0	1	99	1:1	0.149	1.0	

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-9 RSI = 2 - - NR Hotspot SAR

For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

NR TDD Bands : In the case of the NR TDD bands, the Plimit the duty factor=100% was applied to the burst power.

SAR measurements of all NR bands were measured in FTM Mode.

MEASUREMENT RESULTS															
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	SAR_target (12)	Plimit
MHz	Ch.			MHz	(dBm)			(dB)					(W/kg)	(W/kg)	(dBm)
1 860	372000	NR Band n2	High	20	20.87	Back	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.332	1.0	20.0
1 860	372000	NR Band n2	High	20	20.87	Front	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.171	1.0	
1 860	372000	NR Band n2	High	20	20.87	Left	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.017	1.0	
1 860	372000	NR Band n2	High	20	20.87	Right	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.026	1.0	
1 860	372000	NR Band n2	High	20	20.87	Bottom	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.767	1.0	
836.5	167300	NR Band n5	High	20	24.11	Back	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.315	1.0	23.5
836.5	167300	NR Band n5	High	20	24.11	Front	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.146	1.0	
836.5	167300	NR Band n5	High	20	24.11	Left	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.041	1.0	
836.5	167300	NR Band n5	High	20	24.11	Right	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.096	1.0	
836.5	167300	NR Band n5	High	20	24.11	Bottom	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.149	1.0	
1 770	354000	NR Band n66	High	20	19.93	Back	DFT-s-OFDM QPSK	0	10	1	104	1:1	0.606	1.0	19.0
1 770	354000	NR Band n66	High	20	19.93	Front	DFT-s-OFDM QPSK	0	10	1	104	1:1	0.317	1.0	
1 770	354000	NR Band n66	High	20	19.93	Left	DFT-s-OFDM QPSK	0	10	1	104	1:1	0.065	1.0	
1 770	354000	NR Band n66	High	20	19.93	Right	DFT-s-OFDM QPSK	0	10	1	104	1:1	0.056	1.0	
1 770	354000	NR Band n66	High	20	19.93	Bottom	DFT-s-OFDM QPSK	0	10	1	104	1:1	0.771	1.0	
3 750.0	650000	NR Bandn77(PC3)	High	100	17.97	Back	DFT-s-OFDM QPSK	0	10	1	271	1:1	0.275	1.0	17.5
3 750.0	650000	NR Bandn77(PC3)	High	100	17.97	Front	DFT-s-OFDM QPSK	0	10	1	271	1:1	0.101	1.0	
3 750.0	650000	NR Bandn77(PC3)	High	100	17.85	Left	DFT-s-OFDM QPSK	0	10	1	271	1:1	0.438	1.0	
3 750.0	650000	NR Bandn77(PC3)	High	100	17.97	TOP	DFT-s-OFDM QPSK	0	10	1	271	1:1	0.178	1.0	
3500.01	633334	NR Bandn77(DOD)	High	100	16.74	Back	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.165	1.0	17.5
3500.01	633334	NR Bandn77(DOD)	High	100	16.74	Front	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.056	1.0	
3500.01	633334	NR Bandn77(DOD)	High	100	16.74	Left	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.295	1.0	
3500.01	633334	NR Bandn77(DOD)	High	100	16.74	TOP	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.170	1.0	

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-10 RSI = 3 - - 2G/3G Phablet SAR

For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Frame Averaged Conducted Power	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g)	SAR_target (10g)	Plimit
Mhz	Ch.			(dBm)				(W/kg)	(W/kg)	(dBm)
836.6	190	GSM 850	GPRS 3Tx	23.91	Back	0	1:2.77	0.408	2.5	23.7
836.6	190	GSM 850	GPRS 3Tx	23.91	Front	0	1:2.77	0.237	2.5	
836.6	190	GSM 850	GPRS 3Tx	23.91	Left	0	1:2.77	0.078	2.5	
836.6	190	GSM 850	GPRS 3Tx	23.91	Right	0	1:2.77	0.223	2.5	
836.6	190	GSM 850	GPRS 3Tx	23.91	Bottom	0	1:2.77	0.213	2.5	
1 850.2	512	GSM 1900	GPRS 4Tx	17.84	Back	0	1:2.07	0.252	2.5	17.5
1 850.2	512	GSM 1900	GPRS 4Tx	17.84	Front	0	1:2.07	0.130	2.5	
1 850.2	512	GSM 1900	GPRS 4Tx	17.84	Left	0	1:2.07	0.009	2.5	
1 850.2	512	GSM 1900	GPRS 4Tx	17.84	Right	0	1:2.07	0.023	2.5	
1 850.2	512	GSM 1900	GPRS 4Tx	17.84	Bottom	0	1:2.07	0.351	2.5	
836.6	4183	UMTS 850	RMC	24.11	Back	0	1:1	0.646	2.5	24.0
836.6	4183	UMTS 850	RMC	24.11	Front	0	1:1	0.312	2.5	
836.6	4183	UMTS 850	RMC	24.11	Left	0	1:1	0.056	2.5	
836.6	4183	UMTS 850	RMC	24.11	Right	0	1:1	0.153	2.5	
836.6	4183	UMTS 850	RMC	24.11	Bottom	0	1:1	0.265	2.5	
1 880.0	9400	UMTS 1900	RMC	21.41	Back	0	1:1	0.597	2.5	21.0
1 880.0	9400	UMTS 1900	RMC	21.41	Front	0	1:1	0.327	2.5	
1 880.0	9400	UMTS 1900	RMC	21.41	Left	0	1:1	0.040	2.5	
1 880.0	9400	UMTS 1900	RMC	21.41	Right	0	1:1	0.066	2.5	
1 880.0	9400	UMTS 1900	RMC	21.41	Bottom	0	1:1	0.798	2.5	

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-11 RSI = 3 - - 4G Phablet SAR

For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position	Spacing (mm)	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	SAR_target (10g)	Plimit
Mhz	Ch.			Mhz	(dBm)			(dB)				(W/kg)	(W/kg)	(dBm)
707.5	23095	LTE Band 12	Mid	10	24.77	Back	0	0	1	0	1:1	1.070	2.5	24.0
707.5	23095	LTE Band 12	Mid	10	24.77	Front	0	0	1	0	1:1	0.965	2.5	
707.5	23095	LTE Band 12	Mid	10	24.77	Bottom	0	0	1	0	1:1	0.770	2.5	
707.5	23095	LTE Band 12	Mid	10	24.77	Right	0	0	1	0	1:1	0.158	2.5	
707.5	23095	LTE Band 12	Mid	10	24.77	Left	0	0	1	0	1:1	0.161	2.5	
782.0	23230	LTE Band 13	Mid	10	23.97	Back	0	0	1	0	1:1	1.030	2.5	24.0
782.0	23230	LTE Band 13	Mid	10	23.97	Front	0	0	1	0	1:1	1.130	2.5	
782.0	23230	LTE Band 13	Mid	10	23.97	Bottom	0	0	1	0	1:1	0.797	2.5	
782.0	23230	LTE Band 13	Mid	10	23.97	Right	0	0	1	0	1:1	0.181	2.5	
782.0	23230	LTE Band 13	Mid	10	23.97	Left	0	0	1	0	1:1	0.183	2.5	
836.5	20525	LTE Band 5	Mid	10	24.14	Back	0	0	1	0	1:1	0.924	2.5	23.7
836.5	20525	LTE Band 5	Mid	10	24.14	Front	0	0	1	0	1:1	0.719	2.5	
836.5	20525	LTE Band 5	Mid	10	24.14	Bottom	0	0	1	0	1:1	0.463	2.5	
836.5	20525	LTE Band 5	Mid	10	24.14	Right	0	0	1	0	1:1	0.168	2.5	
836.5	20525	LTE Band 5	Mid	10	24.14	Left	0	0	1	0	1:1	0.238	2.5	
1 720.0	132072	LTE Band 66	Mid	20	19.34	Back	0	10	0	1	99	1.170	2.5	19.0
1 720.0	132072	LTE Band 66	Mid	20	19.34	Front	0	10	0	1	99	0.552	2.5	
1 720.0	132072	LTE Band 66	Mid	20	19.34	Bottom	0	10	0	1	99	1.860	2.5	
1 720.0	132072	LTE Band 66	Mid	20	19.24	Right	0	10	0	1	99	0.161	2.5	
1 720.0	132072	LTE Band 66	Mid	20	19.24	Left	0	10	0	1	99	0.229	2.5	
1 900	19100	LTE Band 2	Mid	20	20.80	Back	0	0	1	99	1:1	1.760	2.5	20.5
1 900	19100	LTE Band 2	Mid	20	20.80	Front	0	0	1	99	1:1	0.868	2.5	
1 900	19100	LTE Band 2	Mid	20	20.80	Bottom	0	0	1	99	1:1	2.210	2.5	
1 900	19100	LTE Band 2	Mid	20	20.68	Right	0	0	1	99	1:1	0.147	2.5	
1 900	19100	LTE Band 2	Mid	20	20.68	Left	0	0	1	99	1:1	0.113	2.5	
2 560.0	21350	LTE Band 7	High	20	20.56	Back	0	0	1	0	1:1	0.636	2.5	20.0
2 560.0	21350	LTE Band 7	High	20	20.56	Front	0	0	1	0	1:1	0.696	2.5	
2 560.0	21350	LTE Band 7	High	20	20.56	Bottom	0	0	1	0	1:1	1.340	2.5	
2 560.0	21350	LTE Band 7	High	20	20.56	Right	0	0	1	0	1:1	0.113	2.5	
2 560.0	21350	LTE Band 7	High	20	20.56	Left	0	0	1	0	1:1	1.340	2.5	
3 560.0	55340	LTE Band 48	High	20	20.75	Back	0	0	1	99	1:1.58	1.150	2.5	20.5
3 560.0	55340	LTE Band 48	High	20	20.75	Front	0	0	1	99	1:1.58	1.630	2.5	
3 560.0	55340	LTE Band 48	High	20	20.75	Top	0	0	1	99	1:1.58	1.190	2.5	
3 560.0	55340	LTE Band 48	High	20	20.75	Right	0	0	1	99	1:1.58	0.023	2.5	
3 560.0	55340	LTE Band 48	High	20	22.74	Left	0	0	1	99	1:1.58	2.350	2.5	

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-11 RSI = 3 - - NR Phablet SAR (Grip Sensor is on)

For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

NR TDD Bands : In the case of the NR TDD bands, the Plimit the duty factor=100%, was applied to the burst power.

SAR measurements of all NR bands were measured in FTM Mode.

MEASUREMENT RESULTS															
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	SAR_target 10g	Plimit
Mhz	Ch.			Mhz	(dBm)			(dB)					(W/kg)	(W/kg)	(dBm)
1 860.0	372000	NR Band n2	High	20	20.95	Back	DFT-s-OFDM QPSK	0	0	1	53	1:1	1.39	2.5	20.0
1 860.0	372000	NR Band n2	High	20	20.95	Front	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.688	2.5	
1 860.0	372000	NR Band n2	High	20	20.92	Bottom	DFT-s-OFDM QPSK	0	0	1	53	1:1	1.71	2.5	
1 860.0	372000	NR Band n2	High	20	23.76	Right	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.211	2.5	
1 860.0	372000	NR Band n2	High	20	23.91	Left	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.137	2.5	
836.5	167300	NR Band n5	High	20	24.11	Back	DFT-s-OFDM QPSK	0	0	1	53	1:1	1.050	2.5	23.5
836.5	167300	NR Band n5	High	20	24.11	Front	DFT-s-OFDM QPSK	0	0	1	53	1:1	1.320	2.5	
836.5	167300	NR Band n5	High	20	24.11	Bottom	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.652	2.5	
836.5	167300	NR Band n5	High	20	24.11	Right	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.228	2.5	
836.5	167300	NR Band n5	High	20	24.11	Left	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.212	2.5	
1 770	354000	NR Band n66	High	20	20.00	Back	DFT-s-OFDM QPSK	0	0	1	104	1:1	1.110	2.5	19.0
1 770	354000	NR Band n66	High	20	20.00	Front	DFT-s-OFDM QPSK	0	0	1	104	1:1	0.723	2.5	
1 770	354000	NR Band n66	High	20	20.00	Bottom	DFT-s-OFDM QPSK	0	0	1	104	1:1	1.600	2.5	
1 770	354000	NR Band n66	High	20	23.70	Right	DFT-s-OFDM QPSK	0	0	1	104	1:1	0.232	2.5	
1 770	354000	NR Band n66	High	20	23.70	Left	DFT-s-OFDM QPSK	0	0	1	104	1:1	0.363	2.5	
3 750.0	650000	NR Band77(PC3)	High	100	18.17	Back	DFT-s-OFDM QPSK	0	0	1	137	1:1	0.754	2.5	17.5
3 750.0	650000	NR Band77(PC3)	High	100	18.17	Front	DFT-s-OFDM QPSK	0	0	1	137	1:1	0.680	2.5	
3 750.0	650000	NR Band77(PC3)	High	100	18.17	Top	DFT-s-OFDM QPSK	0	0	1	137	1:1	0.444	2.5	
3 750.0	650000	NR Band77(PC3)	High	100	18.17	Left	DFT-s-OFDM QPSK	0	0	1	137	1:1	1.280	2.5	
3 500.01	633334	NR Band77(DOD)	High	100	18.04	Back	DFT-s-OFDM QPSK	0	0	1	137	1:1	0.486	2.5	17.5
3 500.01	633334	NR Band77(DOD)	High	100	18.04	Front	DFT-s-OFDM QPSK	0	0	1	137	1:1	0.727	2.5	
3 500.01	633334	NR Band77(DOD)	High	100	18.04	Top	DFT-s-OFDM QPSK	0	0	1	137	1:1	0.350	2.5	
3 500.01	633334	NR Band77(DOD)	High	100	18.04	Left	DFT-s-OFDM QPSK	0	0	1	137	1:1	1.190	2.5	

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-11 RSI = 0 (Grip Sensor is not activated) - – 2G/3G Phablet SAR

For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Frame Averaged Conducted Power	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g)	SAR_target (10g)	Plimit
Mhz	Ch.			(dBm)				(W/kg)	(W/kg)	(dBm)
1 850.2	512	GSM 1900	GPRS 4Tx	20.91	Back	11	1:2.07	0.239	2.5	20.5
1 850.2	512	GSM 1900	GPRS 4Tx	20.91	Front	7	1:2.07	0.333	2.5	
1 850.2	512	GSM 1900	GPRS 4Tx	20.91	Bottom	13	1:2.07	0.328	2.5	
1 880.0	9400	UMTS 1900	RMC	24.65	Back	10	1:1	0.613	2.5	24.0
1 880.0	9400	UMTS 1900	RMC	24.65	Front	6	1:1	0.674	2.5	
1 880.0	9400	UMTS 1900	RMC	24.65	Bottom	12	1:1	0.634	2.5	

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-11 RSI = 0 (Grip Sensor is not activated) - - 4G Phablet SAR

For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position	Spacing (mm)	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	SAR_target (10g)	Plimit
MHz	Ch.			MHz	(dBm)			(dB)				(W/kg)	(W/kg)	(dBm)
1 720.0	132072	LTE Band 66	Mid	20	23.1	Back	11	10	0	1	99	0.653	2.5	23.3
1 720.0	132072	LTE Band 66	Mid	20	23.1	Front	7	10	0	1	99	0.55	2.5	
1 720.0	132072	LTE Band 66	Mid	20	23.1	Bottom	13	10	0	1	99	0.784	2.5	
1 900.0	19100	LTE Band 2	Mid	20	23.59	Back	11	0	1	99	1:1	0.722	2.5	23.5
1 900.0	19100	LTE Band 2	Mid	20	23.59	Front	7	0	1	99	1:1	0.858	2.5	
1 900.0	19100	LTE Band 2	Mid	20	23.59	Bottom	13	0	1	99	1:1	0.663	2.5	
2 560.0	21350	LTE Band 7	High	20	20.54	Back	11	0	1	0	1:1	0.157	2.5	23.0
2 560.0	21350	LTE Band 7	High	20	20.54	Front	7	0	1	0	1:1	0.242	2.5	
2 560.0	21350	LTE Band 7	High	20	20.54	Bottom	13	0	1	0	1:1	0.231	2.5	

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-11 RSI = 0 - - NR Phablet SAR (Grip Sensor is not activated)

For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

NR TDD Bands : In the case of the NR TDD bands, the Plimit the duty factor=100%, was applied to the burst power.

SAR measurements of all NR bands were measured in FTM Mode.

MEASUREMENT RESULTS															
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	SAR_target (10g)	Plimit
Mhz	Ch.			Mhz	(dBm)			(dB)					(W/kg)	(W/kg)	(dBm)
1 860.0	372000	NR Band n2	High	20	23.91	Back	DFT-s-OFDM QPSK	0	11	53	1:1	1	0.609	2.5	23.0
1 860.0	372000	NR Band n2	High	20	23.91	Front	DFT-s-OFDM QPSK	0	7	53	1:1	1	0.670	2.5	
1 860.0	372000	NR Band n2	High	20	20.92	Bottom	DFT-s-OFDM QPSK	0	13	53	1:1	1	1.730	2.5	
1 770.0	354000	NR Band n66	High	40	23.70	Back	DFT-s-OFDM QPSK	0	11	1	104	1:1	0.733	2.5	23.0
1 770.0	354000	NR Band n66	High	40	23.70	Front	DFT-s-OFDM QPSK	0	7	1	104	1:1	0.673	2.5	
1 770.0	354000	NR Band n66	High	40	23.70	Bottom	DFT-s-OFDM QPSK	0	13	1	104	1:1	0.969	2.5	

The Plimit of GSM/LTE TDD/NR TDD was written as Frame averaged power

Table A-12 Power Density Simulation and modeling validation

Power density simulations of all beams and surfaces were performed. Details of these simulations and modeling validation can be found in the Power Density Simulation Report. Table below includes a summary of the validation results to support worst-case housing influence quantification in power density characterization for this model.

With an input power of 18 dBm for n260 /n261 band

PD measurements are conducted for at least one single beam on worst-surface(s). PD measurements are performed at mid channel of each mmW band and with CW modulation

Band	Beam ID	Antenna	Surface	Channel	4cm ² avg. PD (mW/cm ²)		Simulated - Measured
					Meas.	Sim	[dB]
n260	3	L (patch)	Right (S4)	Mid	0.752	0.254	-4.71
	3		Back (S2)	Mid	0.654	0.168	-5.91
	11		Right (S4)	Mid	0.349	0.312	-0.49
	10		Back (S2)	Mid	0.242	0.282	0.67
n261	3		Right(S4)	Mid	0.932	0.231	-6.06
	6		Back (S2)	Mid	0.815	0.134	-7.82
	13		Right (S4)	Mid	0.575	0.456	-1.01
	11		Back (S2)	Mid	0.575	0.476	-0.82