SAR Test Report
Part 1 of 3

Project Number:	**4659833**	**Quotation Number:**	**04192019TH-1.3**
Report Number:	**4659833EMC05.1**	**Revision Level:**	**0**
Client:	**KCI USA, Inc.**		

Equipment Under Test:	**ActiV.A.C. Therapy System**
Host Model Name:	**ActiVAC RTM**
Model Number:	**60511**
Contains FCC ID:	**2AHDZ-ACTIVAC4G and SQGBL652**
Applicable Standards:	**IEC 62209-2 2010**
Report issued on:	**22 December 2020**
Test Result:	**Compliant**

Tested by: _____
Stephen C. Whalen, EMC/RF Exposure Manager

Reviewed by: _____
David Schramm, Operations Manager

Remarks: This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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1 SUMMARY OF RESULTS

RF Exposure Conditions	General Population/Uncontrolled		Compliance to FCC Part 2 Section §2.1093
	Localized SAR 1g (Head and Body)	Localized SAR 10g (Extremities)	
	1.6 W/kg	NA	Complies

Equipment Class	Band	Highest SAR values (W/kg)				
		Head		Body		Extremity
		1g	10g	1g	10g	10g
PCB	LTE Band 2 1850-1910 MHz	NA	NA	0.21	NA	NA
PCB	LTE Band 4 1710-1755 MHz	NA	NA	0.31	NA	NA
PCB	LTE Band 12 699-716 MHz	NA	NA	0.26	NA	NA
DTS	BLE 2402-2480 MHz	NA	NA	0.31 (1)	NA	NA
Simultaneous Results		NA	NA	0.62	NA	NA

Note 1: The standalone SAR estimated according to procedures in 4.3.2 b) of FCC 447498 D01 General RF Exposure Guidance v06

2 GENERAL INFORMATION

2.1 CLIENT INFORMATION

Name:	KCI USA, Inc.
Address:	6203 Farinon Drive Building 5
City, State, Zip, Country:	San Antonio, TX 78249

2.2 TEST LABORATORY

Name:	SGS North America, Inc.
Address:	620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country:	Suwanee, GA 30024, USA

2.3 GENERAL INFORMATION OF EUT

Equipment Under Test	ActiV.A.C. Therapy System
Host Model Name:	ActiVAC RTM
Host Model Number:	60511
Sample ID Number:	SAR Radiated: 318463 Conducted: 312417
Contains FCC ID:	2AHDZ-ACTIVAC
LTE Uplink Modulations:	QPSK, 16QAM
BLE Modulations:	π/4 DQPSK, 8DPSK
Maximum Conducted Power:	See Section 7 of this report
Sample Received Date:	SAR radiated: September 28, 2020 Conducted: October 21, 2020
Dates of testing:	December 16 -17, 2020

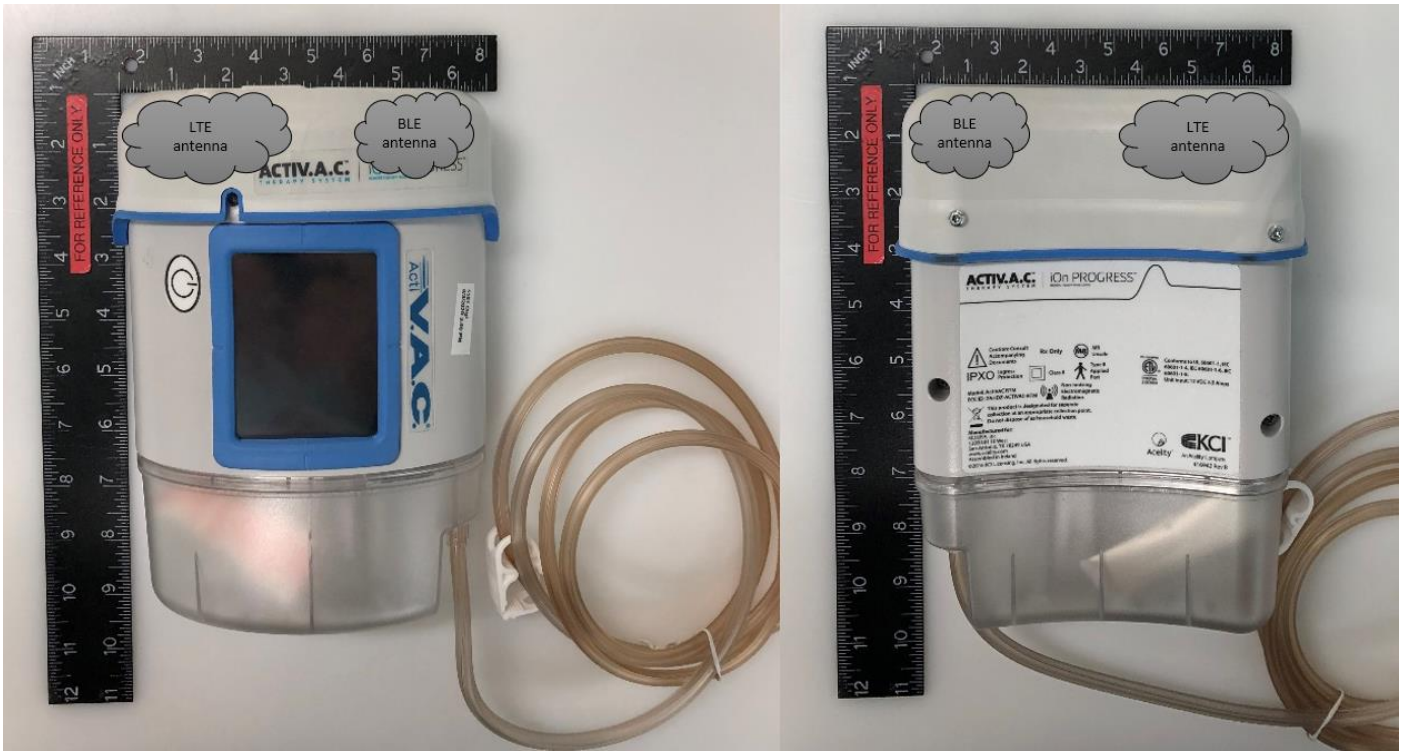
2.4 TX FREQUENCY BANDS

Mode / Band		Nominal Power dBm	Maximum Power dBm	Frequency Range MHz	Channel Bandwidths MHz
LTE Band 2	CAT M1 (eMTC)	23.5	24.5	1850.7 to 1909.3	1.4, 3, 5, 10, 15, 20
LTE Band 4	CAT M1 (eMTC)	23.5	24.5	1710.7 to 1754.3	1.4, 3, 5, 10, 15, 20
LTE Band 12	CAT M1 (eMTC)	23.5	24.5	699.7 to 715.3	1.4, 3, 5, 10
Bluetooth LE	2, 1, 0.5, 0.125 Mbps	4.8	4.8	2402 to 2480	--

2.5 EQUIPMENT UNDER TEST

Device Description	Wound therapy device with wireless communication
Device Category	Portable
Stage of production	Pre-production unit
Intended Use	EUT is worn on a pouch or on the body
Antennas	PCB trace antenna
Battery	Li-Ion, 11.1V, 2600mAh
Optional Accessories	none

2.6 ANTENNA LOCATION



2.7 TEST METHODOLOGY AND REFERENCED STANDARDS AND GUIDELINES

Tests were conducted in accordance with the following applicable standards and guidelines.

IEC62209-2 Edition 1.0 2010-03, 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)

Federal Communications Commission, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields”, OET Bulletin 65, FCC, Washington, D.C.: 1997.

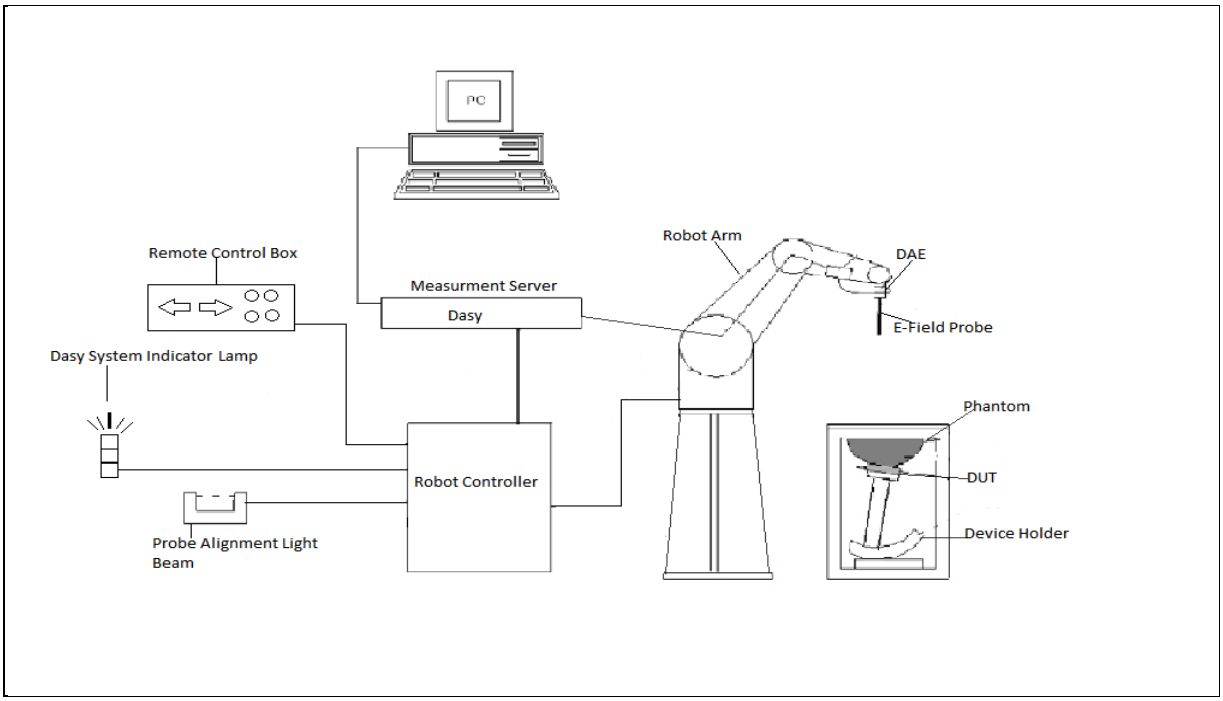
FCC KDB – 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
FCC KDB – 865664 D02 RF Exposure Reporting v01r02
FCC KDB – 447498 D01 General RF Exposure Guidance v06
FCC KDB – 941225 D05 SAR for LTE Devices v02r05

3 TEST EQUIPMENT AND MEASUREMENT SYSTEM

3.1 TEST EQUIPMENT

Equipment	Model	Manufacturer	Serial Number	Cal Due Date
E-Field Probe	ES3DV3	Speag	3272	19-Feb-21
Data Acquisition Electronics	DAE4	Speag	1287	18-Feb-21
Signal Generator	SMB100A	Rohde & Schwarz	104999	25-Jun-22
Directional Coupler	778D	HP	2604A13577	28-Jul-23
Power Meter	E4419B	Agilent	G839511059	20-Nov-21
Power Sensor	8481A	Agilent	MY41094585	19-Oct-21
Power Sensor	8481A	Agilent	2702A61269	19-Oct-21
Network Analyzer	ZVL-6	Rohde & Schwarz	101584	14-Apr-21
Spectrum Analyzer	USB-SA44B	Signal Hound	17220259	NA
Dielectric Assessment Kit	DAK-3.5	Speag	1109	11-Feb-21
Digital Thermometer	DTM3000	LKM Electronic	2952	9-Nov-21
Temperature Recorder	ITHX-SD	Omega	1250749	7-April-21
Dipole	D750V3	Speag	1074	11-Feb-21
Dipole	D1750V2	Speag	1067	18-Feb-21
Dipole	D1900V2	Speag	5d144	12-Feb-21
Wideband Radio Communication Tester	CMW 500	Rohde & Schwarz	127717	17-Jan-22
Phantom	OVAL	Speag	1146	NA

3.2 MEASUREMENT SYSTEM BLOCK DIAGRAM



The Dasy52 SAR test system version 52.10 (4) consists of:

- 1 TX60L Stäubli Robot and system controller cabinet
- 1 Electro Optical Converter mounted on robot's arm
- Robot stand
- Robot remote controller
- Light beam for E-field probe alignment
- DASY5 measurement server
- SAM Twin Phantom or Oval
- Hand-Held/ Laptop device holder
- PC with DASY5 software
- Data Acquisition Electronics (DAE)
- System validation dipole kit
- HBBL600-10000V6 Head Simulating Liquid
- E-field probe
- Warning lamps

3.3 Measurement System Phantom Descriptions

Type	Dimensions	Frequency Range	Dielectric (Ɛr)	Loss Tangent	Material Thickness
Oval ELI5	600x400x190	300MHz - 6GHz	4 ± 1	<0.05	2mm ± 0.2mm
SAM	Human Shaped		< 5		

3.4 Measurement System Tissue Description

Broadband tissue simulation liquid HBBL600-10000V6 was used for SAR testing. Manufactured by Speag and main ingredients are water and oil.

Dielectric Assessment Kit (DAK) was used to measure tissue parameters daily.

4 SYSTEM VALIDATIONS AND VERIFICATIONS

4.1 System Validations

System validations were completed following KDB 856664 and are summarized in table below.

Dates	Probe Calibration Point		Probe SN	Measured Tissue Parameters		Validation		
				σ	ϵ_r	Sensitivity	Linearity	Isotropy
CW								
4/28/2020	Head	750	3272	0.91	44.2	Pass	Pass	Pass
4/28/2020	Head	900	3272	0.89	43.6	Pass	Pass	Pass
4/28/2020	Head	1810	3272	1.37	42.3	Pass	Pass	Pass
4/24/2020	Head	1900	3272	1.45	39.8	Pass	Pass	Pass
5/1/2020	Head	2450	3272	1.83	37.8	Pass	Pass	Pass
LTE								
4/29/2020	Head	750	3272	0.91	43.0	Pass	Pass	Pass
4/29/2020	Head	900	3272	0.94	42.8	Pass	Pass	Pass
4/30/2020	Head	1810	3272	1.36	41.2	Pass	Pass	Pass
5/27/2020	Head	1900	3272	1.47	41.2	Pass	Pass	Pass
802.11								
6/29/2020	Head	2450	3272	1.83	39.3	Pass	Pass	Pass

4.2 System Verifications

System verification is required for the probe calibration points used to measure SAR. The measured results are normalized to 1W and compared to the results from applicable dipole calibration certificates. Results must be within ±10% of target values.

System verifications were completed within 24 hours of SAR testing and results are summarized in table below.

Date	Dipole	Zoom SAR (1g)	Zoom SAR Normalized 1W (1g)	1W Dipole Target SAR (1g)	% Error from Validation Target (1g)
12/16/2020	D1900V2 5d144	0.97	38.88	39.6	-1.82%
12/16/2020	D1750V2 1067	0.91	36.40	36.3	0.28%
12/17/2020	D750V3 1074	0.42	8.44	8.5	-0.47%

4.3 TISSUE MEASUREMENT RESULTS

The tissue dielectric parameters were measured at the beginning of the test or within 24 hours of the first SAR test. All measured dielectric parameters are within ±10% tolerance values shown in Table 1. The ±10% tolerance is permitted when using SAR correction formula for deviation from target dielectric values.

Date	Frequency (MHz)	Measured		Target		Deviation	
		Permitivity Ɛr	Conductivity σ	Permitivity Ɛr	Conductivity σ	Permitivity Ɛr	Conductivity σ
12/16/2020	1900	39.87	1.41	40.00	1.40	-0.33	0.89
12/16/2020	1880	39.89	1.40	40.00	1.40	-0.27	-0.01
12/16/2020	1750	40.05	1.32	40.08	1.37	-0.07	-3.73
12/16/2020	1732.5	40.07	1.31	40.10	1.36	-0.08	-3.75
12/17/2020	750	42.46	0.84	41.94	0.89	1.22	-5.51
12/17/2020	707.5	42.48	0.83	42.18	0.89	0.72	-7.07

5 ENVIRONMENTAL CONDITIONS

The SAR Laboratory is controlled environment. The ambient temperature is maintained between 18 – 25°C and tissue temperatures are monitored to ensure ± 2°C is maintained otherwise tissue parameters are remeasured. The tissue level is confirmed to be ≥ 15cm.

Date	Tissue Type	Tissue Temp. Range C°	Lab Temp. Range C°
12/16/2020	Head	20.37 – 21.52	22.30 – 23.10
12/17/2020	Head	19.75 – 20.75	21.50 - 21.90

RF ambient noise is monitored by conducting a noise cube scan during system verification. A spectrum analyzer is used to monitor unwanted signals that might influence measurements.

The tissue depth was verified to be ≥ 15cm.

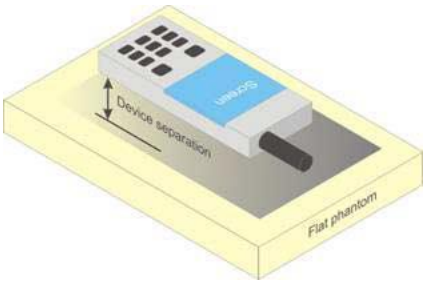
6 MEASUREMENT PROCEDURES

6.1 HEAD CONFIGURATION

NA

6.2 BODY-WORN CONFIGURATION

A body-worn device is a battery-operated wireless device with the ability to transmit while mounted on a person's body using a carry accessory approved by the device manufacturer.
This medical device includes a specific carrycase which is designed for the display to be pointed away from the user's body. Photos of pouch are included in Part 2 of this report.



6.3 LIMB-WORN CONFIGURATION

NA

6.4 SAR Procedures Setup

- Area Scan is used for a fast scan in two dimensions to find the area of high field values before any finer measurement around the hotspot. The routines implemented in the DASY5 software can find the maximum locations.
- Zoom Scan is used to assess the peak spatial values within a cubic averaging volume containing 1g and 10g of simulated tissue. The scan measures points within the cube. Once measurement is done the values are displayed within the job's label.
- Power Drift will measure the field at the same location as the most recent power reference measurement within the same procedure and settings. The Power Drift Measurement gives the field difference in dB.
- Z- Scan measure points along a straight vertical line. The lines run along the z-axis of a one-dimension grid.

The area and zoom scan resolutions specified in KDB 865664 are in table below.

Description		≤ 3 GHZ	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		5 mm ± 1 mm	½·δ·ln(2) mm ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location		30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: ΔxArea, ΔyArea		≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
		When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: ΔxZoom, ΔyZoom		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: ΔzZoom(n)	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details. * When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.			

7 LTE OUTPUT POWER MEASUREMENTS

The following tables include LTE power measurement configurations as defined in KBD 941225 D05.

7.1 LTE BAND 2

LTE Band 2 CAT M1 (eMTC)			QPSK			16QAM		
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1860 MHz	1880 MHz	1900 MHz	1860 MHz	1880 MHz	1900 MHz
20	1	low	22.54	23.74	23.69	22.83	23.51	23.66
		mid	22.68	23.38	23.61	23.04	23.69	23.94
		high	22.87	23.52	23.21	23.36	23.85	23.89
	50%	low	22.91	23.53	23.50	22.64	23.61	23.77
		mid	22.88	23.11	23.36	22.68	23.34	23.50
		high	23.03	23.19	23.29	22.82	23.41	23.65
	100%	low	22.80	23.46	23.45	22.82	23.02	23.18
		mid	22.93	23.18	23.32	23.09	22.86	23.21
		high	23.06	23.48	23.37	23.21	22.91	23.02
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1857.5 MHz	1880 MHz	1902.5 MHz	1857.5 MHz	1880 MHz	1902.5 MHz
15	1	low	22.75	23.64	23.63	22.44	22.97	22.93
		mid	22.94	23.58	23.52	22.57	23.02	22.58
		high	23.02	23.51	23.59	22.30	22.87	22.71
	50%	low	23.05	23.44	23.58	22.18	22.86	22.84
		mid	23.04	23.27	23.27	22.65	22.90	22.65
		high	23.09	23.24	23.34	22.80	22.77	22.81
	100%	low	22.99	23.40	23.51	22.59	22.61	22.81
		mid	23.04	23.25	23.20	22.61	22.73	22.94
		high	23.03	23.43	23.37	22.72	22.85	22.95
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1855 MHz	1880 MHz	1905 MHz	1855 MHz	1880 MHz	1905 MHz
10	1	low	22.91	23.59	23.36	22.48	23.46	23.01
		mid	22.85	23.59	23.33	22.54	23.62	22.83
		high	22.80	23.51	23.33	22.42	23.57	22.95
	50%	low	22.86	23.54	23.27	22.56	23.32	22.97
		mid	23.00	23.55	23.32	22.62	23.30	23.05
		high	23.00	23.62	23.35	22.64	23.26	23.09
	100%	low	22.00	22.45	22.32	21.88	22.27	22.18
		mid	22.00	22.38	22.34	21.68	22.24	22.13
		high	22.12	22.38	22.46	21.79	22.11	22.17
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1852.5 MHz	1880 MHz	1907.5 MHz	1852.5 MHz	1880 MHz	1907.5 MHz
5	1	low	23.24	23.51	23.58	22.51	22.74	22.90
		mid	23.33	23.55	23.70	22.91	22.58	22.70
		high	23.29	23.48	23.70	22.50	22.65	22.68
	50%	low	22.36	22.43	22.48	21.49	21.79	21.99
		mid	22.40	22.28	22.46	21.65	21.92	22.09
		high	22.38	22.29	22.29	21.70	21.10	22.13
	100%	low	22.33	22.26	22.44	20.77	20.99	21.04
		mid	22.11	22.38	22.53	20.81	20.98	21.20
		high	22.21	22.37	22.51	20.80	21.10	21.28
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1851.5 MHz	1880 MHz	1908.5 MHz	1851.5 MHz	1880 MHz	1908.5 MHz
3	1	low	22.84	23.10	23.43	21.23	22.42	21.65
		mid	22.97	23.01	23.48	21.27	22.57	21.97
		high	22.75	23.01	23.55	21.25	22.64	21.71
	50%	low	22.75	22.26	22.40	20.76	20.97	20.89
		mid	22.12	22.34	22.50	20.89	20.99	21.27
		high	22.13	22.34	22.51	20.57	20.78	21.23
	100%	low	21.01	21.37	21.39	21.03	21.05	21.12
		high	21.01	21.37	21.46	21.05	21.23	21.07
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1850.7 MHz	1880 MHz	1909.3 MHz	1850.7 MHz	1880 MHz	1909.3 MHz
1.4	1	low	23.07	23.17	23.38	22.14	21.49	22.09
		mid	23.20	23.00	23.19	22.01	21.73	22.49
		high	23.12	22.92	23.21	21.96	21.90	22.41
	50%	low	21.89	22.14	22.26	20.83	21.00	21.17
		high	21.96	22.12	22.35	20.94	21.06	21.06
	100%	--	20.96	21.24	21.39	21.02	20.90	21.12

7.2 LTE BAND 4

LTE Band 4 CAT M1 (eMTC)			QPSK			16QAM		
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
				1732.5 MHz			1733 MHz	
20	1	low	--	22.91	--	--	23.62	--
		mid	--	22.80	--	--	23.63	--
		high	--	22.87	--	--	23.68	--
	50%	low	--	22.98	--	--	23.40	--
		mid	--	22.95	--	--	23.01	--
		high	--	23.10	--	--	23.23	--
	100%	low	--	23.07	--	--	23.05	--
		mid	--	23.02	--	--	23.04	--
		high	--	23.06	--	--	23.24	--
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1717.5 MHz	1732.5 MHz	1747.5 MHz	1717.5 MHz	1732.5 MHz	1747.5 MHz
15	1	low	22.88	22.87	22.92	22.83	23.14	22.67
		mid	22.95	22.78	22.96	22.89	23.45	22.41
		high	22.95	23.01	22.80	22.88	23.22	22.41
	50%	low	22.94	23.02	22.96	22.59	23.14	22.38
		mid	22.95	22.93	22.84	22.50	23.04	22.31
		high	23.04	23.09	22.98	22.47	23.28	22.31
	100%	low	22.91	23.01	22.86	22.64	23.05	22.88
		mid	22.95	22.92	22.99	22.69	23.06	22.61
		high	23.03	23.04	22.98	22.52	23.04	22.48
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1715.0 MHz	1732.5 MHz	1750.0 MHz	1715.0 MHz	1732.5 MHz	1750.0 MHz
10	1	low	22.88	23.01	22.88	22.45	22.46	22.56
		mid	23.24	23.17	22.83	22.60	22.88	22.53
		high	23.14	23.33	22.83	22.40	22.82	22.36
	50%	low	22.86	23.01	22.85	22.24	22.66	22.30
		mid	22.73	22.81	22.88	22.53	22.71	22.42
		high	22.82	22.97	22.93	22.40	22.64	22.48
	100%	low	21.83	21.96	21.87	21.75	22.09	21.83
		mid	22.00	21.89	21.88	21.81	21.88	21.99
		high	21.89	21.97	21.92	21.59	22.07	21.82
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1712.5 MHz	1732.5 MHz	1752.5 MHz	1712.5 MHz	1732.5 MHz	1752.5 MHz
5	1	low	22.90	22.56	22.98	22.48	23.16	22.38
		mid	23.17	22.71	22.98	22.35	23.51	22.47
		high	23.11	22.72	22.82	22.40	23.30	22.38
	50%	low	21.97	21.77	21.81	21.44	22.08	21.58
		mid	21.99	21.88	21.87	21.46	22.06	21.54
		high	21.79	21.94	21.72	21.46	22.01	21.35
	100%	low	21.93	21.87	21.90	21.83	21.07	20.58
		mid	22.00	21.94	21.96	20.88	21.24	20.74
		high	21.99	21.94	21.92	20.88	21.24	20.95
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1711.5 MHz	1732.5 MHz	1753.5 MHz	1711.5 MHz	1732.5 MHz	1753.5 MHz
3	1	low	23.05	22.82	22.78	22.04	21.81	21.93
		mid	23.06	22.82	22.63	22.34	22.36	22.05
		high	23.22	22.66	22.68	22.32	22.44	22.01
	50%	low	22.00	22.00	21.92	20.39	21.22	21.01
		mid	22.00	21.99	21.87	20.48	20.82	20.99
		high	21.98	21.97	22.01	20.37	20.89	21.07
	100%	low	21.01	21.02	21.07	20.78	20.76	21.01
		high	21.00	21.01	20.93	20.76	20.85	21.06
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1710.7 MHz	Mid CH	1754.3 MHz	1710.7 MHz	Mid CH	1754.3 MHz
1.4	1	low	23.11	23.12	22.91	21.36	22.03	21.37
		mid	23.20	23.28	22.72	21.46	22.45	21.59
		high	23.10	23.20	22.74	21.35	22.28	21.48
	50%	low	22.07	22.16	21.83	20.68	20.58	20.68
		high	21.98	22.12	21.91	20.67	20.43	20.65
	100%	--	20.96	21.13	20.92	20.99	20.73	21.14

7.3 LTE BAND 12

LTE Band 12 CAT M1 (eMTC)			QPSK			16QAM		
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
				1732.5 MHz			1733 MHz	
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1715.0 MHz	1732.5 MHz	1750.0 MHz	1715.0 MHz	1732.5 MHz	1750.0 MHz
10	1	low	--	23.53	--	--	24.24	--
		mid	--	23.64	--	--	24.41	--
		high	--	23.61	--	--	24.38	--
	50%	low	--	23.71	--	--	24.06	--
		mid	--	23.66	--	--	24.02	--
		high	--	23.67	--	--	24.04	--
	100%	low	--	22.89	--	--	22.96	--
		mid	--	22.83	--	--	22.90	--
		high	--	22.76	--	--	22.84	--
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1712.5 MHz	1732.5 MHz	1752.5 MHz	1712.5 MHz	1732.5 MHz	1752.5 MHz
5	1	low	24.00	23.56	23.95	23.29	23.98	23.39
		mid	24.11	23.74	24.14	23.38	24.20	23.33
		high	24.17	23.67	24.09	23.33	24.05	23.27
	50%	low	23.06	22.95	23.03	22.34	22.84	22.35
		mid	23.11	23.11	22.86	22.37	22.89	22.39
		high	23.20	23.19	22.84	22.38	22.98	22.36
	100%	low	23.14	22.84	22.81	21.53	22.03	21.44
		mid	23.06	22.77	22.83	21.58	21.90	21.47
		high	23.07	22.77	22.83	21.57	21.91	21.45
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1711.5 MHz	1732.5 MHz	1753.5 MHz	1711.5 MHz	1732.5 MHz	1753.5 MHz
3	1	low	23.90	23.53	23.83	22.79	22.82	22.71
		mid	24.02	23.54	23.92	23.42	23.33	23.21
		high	23.98	23.53	23.89	22.71	23.27	22.82
	50%	low	22.95	22.70	22.97	21.83	21.27	21.84
		mid	22.97	22.76	22.95	21.84	21.26	21.85
		high	22.96	22.78	22.95	21.96	21.18	21.86
	100%	low	21.96	21.79	21.99	21.84	21.54	21.85
		high	21.97	21.81	21.91	21.84	21.55	21.95
BW	**RB Alloc.**	**RB Offset**	**Low Ch**	**Mid CH**	**High Ch**	**Low Ch**	**Mid CH**	**High Ch**
			1710.7 MHz	Mid CH	1754.3 MHz	1710.7 MHz	Mid CH	1754.3 MHz
1.4	1	low	23.53	23.48	23.90	22.94	22.12	22.17
		mid	23.69	23.58	24.11	23.42	22.32	22.28
		high	23.64	23.52	24.01	23.31	22.13	22.16
	50%	low	22.71	22.60	23.07	21.53	21.42	21.55
		high	22.82	22.71	22.99	21.41	21.51	21.54
	100%	--	21.84	21.74	21.98	21.59	21.63	21.60

8 SAR RESULTS

Scaled SAR results include scaling up to maximum tune-up tolerance and negative drift.

LTE SAR Test Reduction Procedure:

KDB 941225 D05 SAR for LTE Devices:

Section 4.1 note 3 - For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. 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; therefore, the requirement for H, M, and L channels may not fully apply.

Section 5.2.1 - Start with the largest channel bandwidth then measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle, and lower edge of each required test channel. When the reported SAR is ≤ 50% of applied limit, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 90% of applied limit, SAR is required for all three RB offset configurations for that required test channel.

Section 5.2.2 - The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.

Section 5.2.3 - For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations, and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 50% of limit. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 90% of limit, the remaining required test channels must also be tested.

Section 5.2.4 - For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in 5.2.1, 5.2.2, and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 90% of limit.

8.1 LTE BAND 2 (20MHz BANDWIDTH)

Test Position	Mode	Dist. (mm)	Ch. No.	Freq. (MHz)	NB Offset	RB Allocation	RB Offset	Max Power (dBm)	Meas. Power (dBm)	Power Scaling factor	Drift (dB)	Drift Scaling factor	Mes. SAR 1g	Scaled SAR 1g	Plot No.
Body	QPSK	0	18900	1880	Low	1	0	24.5	23.74	1.19	-0.08	1.02	0.17	0.21	1
Body	QPSK	0	18900	1860	Low	50%	0	24.5	23.53	1.25	0	1.00	0.16	0.20	

Additional testing not required per LTE SAR Test Reduction Procedure.

8.2 LTE BAND 4 (20MHz BANDWIDTH)

Test Position	Mode	Dist. (mm)	Ch. No.	Freq. (MHz)	NB Offset	RB Allocation	RB Offset	Max Power (dBm)	Meas. Power (dBm)	Power Scaling factor	Drift (dB)	Drift Scaling factor	Mes. SAR 1g	Scaled SAR 1g	Plot No.
Body	QPSK	0	20175	1732.5	Low	1	0	24.5	22.91	1.44	0	1.00	0.17	0.25	
Body	QPSK	0	20175	1732.5	High	50%	3	24.5	23.10	1.38	0	1.00	0.20	0.28	
Body	16QAM	0	20175	1732.5	Low	1	0	24.5	23.62	1.22	0	1.00	0.25	0.31	2

Additional testing not required per LTE SAR Test Reduction Procedure.

8.3 LTE BAND 12 (10MHz BANDWIDTH)

Test Position	Mode	Dist. (mm)	Ch. No.	Freq. (MHz)	NB Offset	RB Allocation	RB Offset	Max Power (dBm)	Meas. Power (dBm)	Power Scaling factor	Drift (dB)	Drift Scaling factor	Mes. SAR 1g	Scaled SAR 1g	Plot No.
Body	QPSK	0	23095	707.5	4	1	3	24.5	23.64	1.22	0	1.00	0.20	0.24	
Body	QPSK	0	23095	707.5	Low	50%	0	24.5	23.71	1.20	0	1.00	0.19	0.23	
Body	16QAM	0	23095	707.5	4	1	3	24.5	24.41	1.02	0	1.00	0.25	0.26	3

Additional testing not required per LTE SAR Test Reduction Procedure.

9 VARIABILITY ASSESSMENT

Per the guidelines in KDB 865664 SAR variability assessment is not required because SAR results are below 50% threshold of applicable limit.

10 SIMULTANEOUS TRANSMISSION

		Freq (MHz)	CH	Modulation	SAR
Body	WWAN	1732.5	20175	16QAM	0.31
	BLE	2402	37	π/4 DQPSK	0.31
				Total Simultaneous SAR	**0.62**

11 SYSTEM UNCERTAINTY

A System uncertainty analysis per KDB 865664 is not required since reported SAR is < 93.75% of applicable limit.

Per guidelines of ISO 17025 a reported system uncertainty is required and therefore included in Part 3.

12 REVISION HISTORY

Revision Level	Description of changes	Revision Date
DRAFT	--	20 December 20
0	Initial release	22 December 2020