



DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 2 of 2

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Date of Report: 08/25/2022
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Date/s Tested: 03/28/2022 – 04/27/2022, 05/10/2022 – 05/11/2022, 5/25/2022
Manufacturer: Motorola Solutions Inc.
DUT Description: Handheld Portable – MOTOTRBO ION 8/900 2.5W LTE CBRS GNSS BT WiFi
Test TX mode(s): FM; LTE; WLAN
Max. Power output: Refer table 3, 3a (refer to part 1 of 2)
Tx Frequency Bands: Refer table 3 (refer to part 1 of 2)
Signaling type: FM, TDMA, FHSS, DSSS and OFDM
Model(s) Tested: AAH90UCU9RH1AN (PMUF5678A)
Model(s) Certified: AAH90UCU9RH1AN (PMUF5678A)
Serial Number(s): 734TYF0018 & 734TYF0025
Classification: Occupational/Controlled
Applicant Name: Motorola Solutions Inc.
Applicant Address: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322
FCC ID: AZ489FT7151;
 This report contains results that are immaterial for FCC equipment approval, which are clearly identified.
IC: 109U-89FT7151;
 This report contains results that are immaterial for ISED equipment approval, which are clearly identified.
ISED Test Site registration: 24843
FCC Test Firm Registration Number: 823256

The test results clearly demonstrate compliance with FCC Occupational/Controlled RF Exposure limits of 8 W/kg averaged over 1 gram per the requirements of FCC 47 CFR § 2.1093 and RSS-102 (Issue 5).

Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the national and international reference standards and guidelines listed in section 4.0 of this report (no deviation from standard methods). This report shall not be reproduced without written approval from an officially designated representative of the Motorola Solutions Inc EME Laboratory.

I attest to the accuracy of the data and assume full responsibility for the completeness of these measurements. This reporting format is consistent with the suggested guidelines of the TIA TSB-150 December 2004. The results and statements contained in this report pertain only to the device(s) evaluated.

Saw Sun Hock (Approved Signatory)
Approval Date: 08/25/2022

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1.0 System Verification for WLAN

System verification checks were conducted each day during the SAR assessment. The results are normalized to 1W. Appendix C includes DASY plots for each day during the SAR assessment. The Table below summarizes the daily system check results used for the SAR assessment.

Table 1

Probe Serial #	Tissue Type	Dipole Kit / Serial #	Ref SAR @ 1W (W/kg)	System Check Results Measured (W/kg)	System Check Test Results when normalized to 1W (W/kg)	Tested Date
7511	IEEE / IEC Head	SPEAG D2450V2 / 782	54.40 ± 10%	13.5	54.00	04/01/2022#
				13.0	52.00	04/02/2022#
				13.1	52.40	04/03/2022#
				13.3	53.20	04/20/2022#
				13.1	52.40	04/22/2022
7534	IEEE / IEC Head	SPEAG D5GHzV2_ 5250MHz / 1022	81.30 ± 10%	7.61	76.10	04/02/2022#
				7.92	79.20	04/03/2022#
7533	IEEE / IEC Head	SPEAG D5GHzV2_ 5250MHz / 1022	81.30 ± 10%	7.95	79.50	04/04/2022#
		SPEAG D5GHzV2_ 5250MHz / 1026	80.60 ± 10%	7.59	75.90	04/06/2022#
		SPEAG D5GHzV2_ 5600MHz / 1022	83.90 ± 10%	7.95	79.50	04/05/2022#
		SPEAG D5GHzV2_ 5600MHz / 1026	83.90 ± 10%	7.48	74.80	04/06/2022#
		SPEAG D5GHzV2_ 5600MHz / 1026	83.90 ± 10%	7.60	76.00	04/04/2022#
		SPEAG D5GHzV2_ 5750MHz / 1026	79.70 ± 10%	7.57	75.70	04/07/2022#
			7.68	76.80	04/08/2022#	
			7.59	75.90	04/09/2022	
			7.65	76.50	04/12/2022	

Note: '#' indicates that system verification check covers next test day

2.0 Equivalent Tissue Test Results for WLAN

Simulated tissue prepared for SAR measurements is measured daily and within 24 hours prior to actual SAR testing to verify that the tissue is within +/- 5% of target parameters at the center of the transmit band. This measurement is done using the applicable equipment indicated in section 9.0 (refer Part 1). The Table below summarizes the measured tissue parameters used for the SAR assessment.

Table 2

Frequency (MHz)	Tissue Type	Conductivity Target (S/m)	Dielectric Constant Target	Conductivity Meas. (S/m)	Dielectric Constant Meas.	Tested Date
2412	IEEE/ IEC Head	1.77 (1.68-1.86)	39.3 (35.3-43.2)	1.73	39.3	04/03/2022#
2437		1.79 (1.70-1.88)	39.2 (35.3-43.1)	1.75	39.3	04/03/2022#
2450		1.80 (1.71-1.89)	39.2 (35.3-43.1)	1.76	41.1	04/20/2022#
				1.72	38.3	04/01/2022#
				1.74	40.8	04/02/2022#
				1.77	39.2	04/03/2022#
				1.76	41.0	04/20/2022#
				1.78	36.8	04/22/2022
2462		1.81 (1.72-1.90)	39.2 (35.3-43.1)	1.73	38.2	04/01/2022#
				1.75	40.7	04/02/2022#
				1.78	39.2	04/03/2022#
				1.79	36.8	04/22/2022
5250		4.71 (4.24-5.18)	36.0 (32.4-39.5)	4.46	33.0	04/02/2022#
				4.42	32.7	04/03/2022#
				4.27	32.8	04/04/2022#
				4.49	33.2	04/06/2022#
5290		4.75 (4.28-5.23)	35.9 (32.3-39.5)	4.50	32.9	04/02/2022#
				4.46	32.7	04/03/2022#
				4.31	32.8	04/04/2022#
				4.53	33.1	04/06/2022#
5530		5.00 (4.5-5.5)	35.6 (32-39.2)	4.54	32.4	04/04/2022#
				4.57	34.1	04/05/2022#
				4.78	32.7	04/06/2022#
5600		5.07 (4.56-5.58)	35.5 (32-39.1)	4.62	32.3	04/04/2022#
				4.64	34.0	04/05/2022
				4.86	32.6	04/06/2022#
5610		5.08 (4.57-5.59)	35.5 (31.9-39)	4.87	32.5	04/06/2022#
5690		5.16 (4.64-5.68)	35.4 (31.9-39)	4.85	32.4	04/07/2022#
	4.90			32.3	04/08/2022#	
	4.74			32.0	04/12/2022	
5750	5.22 (4.7-5.74)	35.4 (31.8-38.9)	4.91	32.1	04/07/2022#	
			4.96	32.2	04/08/2022#	
			4.76	31.9	04/09/2022	
			4.80	31.9	04/12/2022	
5775	5.25 (4.72-5.77)	35.3 (31.8-38.9)	4.78	31.8	04/09/2022	
			4.82	31.9	04/12/2022	

Note: '#' indicates that tissue test result covers next test day (within 24 hours)

3.0 DUT Test Data for WLAN

SAR test reduction is applied using the following criteria according to KDB 248227 D01:

- a. For 2.4GHz 802.11 g/n SAR testing is not required when then highest reported SAR for DSSS is adjusted by ratio of OFDM to DSSS specified maximum output power and adjusted SAR is ≤ 1.2 W/kg.
- b. U-NII-1 SAR testing not required when U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg.
- c. For all positions/configurations, when reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required test positions/configurations are tested.

3.1 Assessment for WLAN 2.4 GHz (802.11 b/g/n)

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 248227.

Table 3

Band	802.11	Ch. BW	Ch.	Freq. (MHz)	Measured conducted power (W)
2.4 GHz	b	20	1	2412	0.0488
			6	2437	0.0488
			11	2462	0.0536
	g	20	1	2412	0.0443
			6	2437	0.0431
			11	2462	0.0466
	n	20	1	2412	0.0427
			6	2437	0.0426
			11	2462	0.0458
		40	3	2422	0.0480

Assessments at the Body with offered body worn accessories

DUT assessment with WLAN internal antenna, offered battery and without any cable accessory attached against the phantom with the offered body worn accessories. SAR plots of the highest results per Table (bolded) are presented in the Appendix E.

Table 4

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
802.11b									
AN000345A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	2462.0000	0.055	-0.16	0.022	0.023	AM-AB-220402-05#
		PMLN8126A w/ PMLN7008A							AR-AB-220402-04#
		PMLN8127A w/ PMLN5407A							AM-AB-220402-13#
		PMLN8127A w/ PMLN5409A							AM-AB-220402-11#
Assessment of Additional Batteries									
AN000345A01	PMNN4804A	PMLN8126A w/ PMLN7008A	None	2462.0000	0.055	-0.25	0.036	0.039	MA-AB-220404-01#
	PMNN4805A								MA-AB-220404-03#

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Assessments at the Face

DUT assessment with WLAN internal antenna and offered battery with front of DUT positioned 2.5cm facing phantom. SAR plots of the highest results per Table (bolded) are presented in the Appendix E.

Table 5

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
802.11b									
AN000345A01	PMNN4805A	Radio @ front 2.5cm	None	2462.0000	0.054	0.79*	0.014	0.015	MA-FACE-220422-02
Assessment of Additional Batteries									
AN000345A01	PMNN4803A	Radio @ front 2.5cm	None	2462.0000	0.055	0.14	0.025	0.026	MA-FACE-220403-07#
	PMNN4804A								MA-FACE-220403-10#

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Additional Assessments for ISED Canada

Based on the assessment results for body and face per KDB643646 D01, additional tests were not required for the Industry Canada frequency range (2412-2462 MHz) as the testing performed is in compliance with Industry Canada frequency range.

However, as per ISED Notice 2016-DRS001, additional tests were required for the low, mid and high frequency channels for the configuration with the highest SAR value. The SAR results are in Tables below. SAR plot is included in Appendix for the highest configuration.

Table 6

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
Body									
AN000345A01	PMNN4805A	PMLN8126A w/ PMLN7008A	None	2412.0000	0.049	0.42	0.036	0.042	MA-AB-220404-06#
				2437.0000	0.049	0.55*	0.044	0.051	MA-AB-220404-07#
				2462.0000	0.054	-0.17	0.040	0.043	MA-AB-220404-03#
Face									
AN000345A01	PMNN4803A	Radio @ front 2.5cm	None	2412.0000	0.051	1.65*	0.009	0.010	AM-FACE-220404-09#
				2437.0000	0.050	-1.27*	0.009	0.014	MA-FACE-220421-01#
				2462.0000	0.055	0.14	0.025	0.026	MA-FACE-220403-07#

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

3.2 Assessment for WLAN 5.0 GHz (802.11 a/n/ac)

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 248227.

Table 7

Band	802.11	Ch. BW	Ch.	Freq. (MHz)	Measured conducted power (W)
U-NII-1 (5.15-5.25GHz)	a	20	36	5180	0.0214
			40	5200	0.0221
			44	5220	0.0249
			48	5240	0.0248
	n	20	36	5180	0.0200
			40	5200	0.0213
			44	5220	0.0237
			48	5240	0.0238
		40	38	5190	0.0191
			46	5230	0.0222
	ac	20	36	5180	0.0205
			40	5200	0.0212
			44	5220	0.0236
			48	5240	0.0237
40		38	5190	0.0195	
		46	5230	0.0225	
80	42	5210	0.0233		
U-NII-2A (5.25-5.35GHz)	a	20	52	5260	0.0216
			56	5280	0.0209
			60	5300	0.0221
			64	5320	0.0238
	n	20	52	5260	0.0208
			56	5280	0.0200
			60	5300	0.0214
			64	5320	0.0230
		40	54	5270	0.0198
			62	5310	0.0209
	ac	20	52	5260	0.0209
			56	5280	0.0201
			60	5300	0.0212
			64	5320	0.0230
		40	54	5270	0.0201
			62	5310	0.0214
80	58	5290	0.0213		
U-NII-2C (5.47-5.65 GHz)	a	20	100	5500	0.0372
			112	5560	0.0350
			116	5580	0.0357
			128	5640	0.0351
	n	20	100	5500	0.0357
			112	5560	0.0336
			116	5580	0.0348
			128	5640	0.0339
		40	102	5510	0.0371
			110	5550	0.0350

Table 7 (Continue)

Band	802.11	Ch. BW	Ch.	Freq. (MHz)	Measured conducted power (W)	
U-NII-2C (5.47-5.65 GHz)	n	40	118	5590	0.0370	
			126	5630	0.0340	
	ac	20	100	5500	0.0359	
			112	5560	0.0338	
			116	5580	0.0352	
			128	5640	0.0338	
			102	5510	0.0378	
		40	110	5550	0.0355	
			118	5590	0.0379	
			126	5630	0.0347	
		80	106	5530	0.0393	
			122	5610	0.0378	
	U-NII-3 (5.65-5.85 GHz)	a	20	132	5660	0.0350
				149	5745	0.0348
165				5825	0.0361	
n		20	132	5660	0.0337	
			149	5745	0.0343	
			165	5825	0.0348	
		40	134	5670	0.0348	
			142	5710	0.0364	
			151	5755	0.0361	
ac		20	132	5660	0.0337	
			149	5745	0.0343	
			165	5825	0.0350	
		40	134	5670	0.0353	
			142	5710	0.0372	
			151	5755	0.0366	
			159	5795	0.0373	
		80	138	5690	0.0377	
			155	5775	0.0366	

Assessments at the Body U-NII-2A (5.25-5.35GHz)

DUT assessment with WLAN internal antenna, offered battery and without any cable accessory attached against the phantom with the offered body worn accessories. SAR plots of the highest results per Table (bolded) are presented in the Appendix E.

Table 8

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
802.11ac 80MHz BW									
AN000345A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	5290.0000	0.021	-0.37	0.007	0.010	MFR-AB-220404-02#
		PMLN8126A w/ PMLN7008A			0.021	-1.67*	0.007	0.014	SAN(AMF)-AB-220404-04#
		PMLN8127A w/ PMLN5407A			0.021	0.89*	0.008	0.010	SAN(AMF)-AB-220404-05#
		PMLN8127A w/ PMLN5409A			0.021	2.47*	0.006	0.008	MA(DAN)-AB-220405-01#
Assessment of Additional Batteries									
AN000345A01	PMNN4804A	PMLN8126A w/ PMLN7008A	None	5290.0000	0.022	-0.48*	0.011	0.015	BAD(AMF)-AB-220407-06#
	PMNN4805A				0.021	0.97	0.007	0.009	SAN(IRA)-AB-220406-09

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Assessments at the Body U-NII-2C (5.47-5.65GHz)

DUT assessment with WLAN internal antenna, offered battery and without any cable accessory attached against the phantom with the offered body worn accessories. SAR plots of the highest results per Table (bolded) are presented in the Appendix

Table 9

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
802.11ac 80MHz BW									
AN000345A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	5530.0000	0.040	-0.60*	0.016	0.020	BAD-AB-220405-04#
		PMLN8126A w/ PMLN7008A			0.039	-0.33	0.013	0.015	BAD-AB-220405-05#
		PMLN8127A w/ PMLN5407A			0.039	-0.22	0.011	0.013	BAD-AB-220405-06#
		PMLN8127A w/ PMLN5409A			0.039	0.65*	0.012	0.013	MA(DAN)-AB-220405-09
Assessment of Additional Batteries									
AN000345A01	PMNN4804A	PMLN8126A w/ PMLN4651A	None	5530.0000	0.040	-0.05	0.018	0.020	SAN(IRA)-AB-220407-02#
	PMNN4805A	PMLN4651A			0.039	0.22	0.015	0.016	BAD-AB-220407-03#

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Assessments at the Body U-NII-3 (5.65-5.85 GHz)

DUT assessment with WLAN internal antenna, offered battery and without any cable accessory attached against the phantom with the offered body worn accessories. SAR plots of the highest results per Table (bolded) are presented in the Appendix E.

Table 10

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
802.11ac 80MHz BW									
AN000345A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	5690.0000	0.038	1.13*	0.015	0.017	SAN(IRA)-AB-220408-01#
		PMLN8126A w/ PMLN7008A			0.038	-1.07*	0.014	0.020	MFR(DAN)-AB-220412-04
		PMLN8127A w/ PMLN5407A			0.038	0.65*	0.012	0.014	BAD-AB-220408-02#
		PMLN8127A w/ PMLN5409A			0.038	-1.87*	0.010	0.017	BAD-AB-220408-04#
Assessment of Additional Batteries									
AN000345A01	PMNN4804A	PMLN8126A w/ PMLN7008A	None	5690.0000	0.038	-1.93*	0.013	0.023	MFR(DAN)-AB-220412-06
	PMNN4805A				0.038	-1.07*	0.013	0.019	BAD-AB-220412-08

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Assessments at the Face U-NII-2A (5.25-5.35GHz)

DUT assessment with WLAN internal antenna and offered battery with front of DUT positioned 2.5cm facing phantom. SAR plots of the highest results per Table (bolded) are presented in the Appendix E.

Table 11

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
802.11ac 80MHz BW									
AN000345A01	PMNN4805A	Radio @ front 2.5cm	None	5290.0000	0.021	0.039	0.001	0.001	SAN-FACE-220403-04#
Assessment of Additional Batteries									
AN000345A01	PMNN4803A	Radio @ front 2.5cm	None	5290.0000	0.021	-1.39*	0.001	0.002	SAN-FACE-220403-03#
	PMNN4804A				0.022	0.20	0.006	0.008	MFR-FACE-220403-08

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Assessments at the Face U-NII-2C (5.47-5.65GHz)

DUT assessment with WLAN internal antenna and offered battery with front of DUT positioned 2.5cm facing phantom. SAR plots of the highest results per Table (bolded) are presented in the Appendix E.

Table 12

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
802.11ac 80MHz BW									
AN000345A01	PMNN4805A	Radio @ front 2.5cm	None	5530.0000	0.039	-0.47	0.013	0.016	BAD-FACE-220406-06#
Assessment of Additional Batteries									
AN000345A01	PMNN4803A	Radio @ front 2.5cm	None	5530.0000	0.039	-0.36	0.007	0.009	AF-FACE-220525-09
	PMNN4804A				0.040	0.92*	0.014	0.019	BAD-FACE-220406-05#

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Assessments at the Face U-NII-3 (5.65-5.85GHz)

DUT assessment with WLAN internal antenna and offered battery with front of DUT positioned 2.5cm facing phantom. SAR plots of the highest results per Table (bolded) are presented in the Appendix E.

Table 13

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
802.11ac 80MHz BW									
AN000345A01	PMNN4805A	Radio @ front 2.5cm	None	5690.0000	0.040	-1.23*	0.009	0.013	MA(DAN)-FACE-220409-03#
Assessment of Additional Batteries									
AN000345A01	PMNN4803A	Radio @ front 2.5cm	None	5690.0000	0.040	-0.64*	0.010	0.013	MA(DAN)-FACE-220409-05#
	PMNN4804A				0.040	0.66*	0.015	0.017	MA(DAN)-FACE-220409-06#

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Additional Assessments for ISED Canada

Based on the assessment results for body and face per KDB643646 D01, additional tests were not required for the Industry Canada frequency range as the testing performed is in compliance with Industry Canada frequency range.

However, as per ISED Notice 2016-DRS001, additional tests were required for the low, mid and high frequency channels for the configuration with the highest SAR value (UNII-2C and UNII-3). This is not applicable to UNII-2A since there is only one test channel. The SAR results are in Tables below. SAR plot is included in Appendix for the highest configuration

Table 14

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
802.11ac 80MHz BW (UNII-2C)									
Body									
AN000345A01	PMNN4804A	PMLN8126A w/ PMLN4651A	None	5530.0000	0.040	-0.05	0.018	0.020	SAN(IRA)-AB-220407-02#
				5610.0000	0.039	-0.35	0.019	0.023	BAD-AB-220407-04#
Face									
AN000345A01	PMNN4804A	Radio @ front 2.5cm	None	5530.0000	0.040	0.92*	0.014	0.019	BAD-FACE-220406-05#
				5610.0000	0.039	-0.35	0.010	0.012	BAD(AMF)-FACE-220407-05#

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Table 15

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
802.11ac 80MHz BW (UNII-3)									
Body									
AN000345A01	PMNN4804A	PMLN8126A w/ PMLN7008A	None	5690.0000	0.038	-1.93*	0.013	0.023	MFR(DAN)-AB-220412-06
				5775.0000	0.037	-0.46*	0.019	0.025	BAD-AB-220412-09
Face									
AN000345A01	PMNN4804A	Radio @ front 2.5cm	None	5690.0000	0.038	0.66*	0.015	0.017	MA(DAN)-FACE-220409-06#
				5775.0000	0.037	2.96*	0.010	0.012	SAN(IRA)-FACE-220409-08

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

4.0 Variability Assessment for WLAN

Per the guidelines in KDB 865664 SAR variability assessment is not required because SAR results are below 0.8W/kg.

5.0 System Verification for LTE

System verification checks were conducted each day during the SAR assessment. The results are normalized to 1W. Appendix C includes DASY plots for each day during the SAR assessment. The Table below summarizes the daily system check results used for the SAR assessment.

Table 16

Probe Serial #	Tissue Type	Dipole Kit / Serial #	Ref SAR @ 1W (W/kg)	System Check Results Measured (W/kg)	System Check Test Results when normalized to 1W (W/kg)	Tested Date
7511	IEEE / IEC Head	SPEAG D750V3 / 1142	8.52 +/- 10%	1.99	7.96	04/09/2022#
				2.01	8.05	04/10/2022
		SPEAG D835V2 / 4d029	9.80 +/- 10%	2.37	9.48	04/08/2022#
				2.32	9.28	04/09/2022
		SPEAG D1800V2 / 2D119	38.50 +/- 10%	9.36	37.44	04/07/2022#
				8.96	35.84	04/27/2022
		SPEAG D1900V2 / 5d064	39.90 +/- 10%	9.48	37.92	04/06/2022#
				9.70	38.80	04/18/2022
		SPEAG D2300V2 / 1003	48.40 +/- 10%	11.10	44.40	04/12/2022#
		SPEAG D2600V2 / 1011	57.30 +/- 10%	13.00	52.00	04/10/2022#
				14.70	58.80	04/11/2022#
		SPEAG D3500V2 / 1008	66.30 +/- 10%	6.79	67.90	04/27/2022
SPEAG D3700V2 / 1028	69.00 +/- 10%	7.43	74.30	04/15/2022		
		7.59	75.90	04/13/2022#		
		7.28	72.80	04/27/2022		
7533	IEEE / IEC Head	SPEAG D3700V2 / 1028	69.00 +/- 10%	7.32	73.20	04/22/2022

Note: '#' indicates that system verification check covers next test day

6.0 Equivalent Tissue Test Results for LTE

Simulated tissue prepared for SAR measurements is measured daily and within 24 hours prior to actual SAR testing to verify that the tissue is within +/- 5% of target parameters at the center of the transmit band. This measurement is done using the applicable equipment indicated in section 9.0. The Table below summarizes the measured tissue parameters used for the SAR assessment.

Table 17

Frequency (MHz)	Tissue Type	Conductivity Target (S/m)	Dielectric Constant Target	Conductivity Meas. (S/m)	Dielectric Constant Meas.	Tested Date
708	IEEE/ IEC Head	0.89 (0.84-0.93)	42.1 (40-44.2)	0.85	42.0	04/09/2022#
				0.85	40.6	04/10/2022
750		0.89 (0.85-0.93)	41.9 (39.8-44)	0.86	41.9	04/09/2022#
				0.86	40.5	04/10/2022
782		0.89 (0.85-0.94)	41.7 (39.7-43.8)	0.85	43.1	04/08/2022#
				0.87	41.8	04/09/2022
793		0.90 (0.85-0.94)	41.7 (39.6-43.8)	0.88	41.8	04/09/2022
835		0.90 (0.86-0.95)	41.5 (39.4-43.6)	0.87	42.9	04/08/2022
				0.89	41.7	04/09/2022
837		0.90 (0.86-0.95)	41.5 (39.4-43.6)	0.87	42.9	04/08/2022
1733		1.36 (1.29-1.43)	40.1 (38.1-42.1)	1.30	40.7	04/07/2022#
				1.29	39.3	04/27/2022
1800		1.40 (1.33-1.47)	40.0 (38-42)	1.34	40.6	04/06/2022#
				1.33	39.2	04/27/2022
1860		1.40 (1.33-1.47)	40.0 (38-42)	1.33	40.4	04/06/2022#
1880		1.40 (1.33-1.47)	40.0 (38-42)	1.35	40.4	04/06/2022#
				1.35	41.5	04/18/2022
1900		1.40 (1.33-1.47)	40.0 (38-42)	1.36	40.3	04/06/2022#
				1.36	41.5	04/18/2022
2300		1.67 (1.59-1.75)	39.5 (35.6-43.5)	1.65	37.9	04/12/2022#
2310	1.68 (1.59-1.76)	39.5 (35.5-43.4)	1.65	37.9	04/12/2022#	
2510	1.86 (1.77-1.96)	39.1 (35.2-43)	1.82	38.2	04/10/2022#	
			1.81	40.2	04/11/2022#	
2535	1.89 (1.8-1.99)	39.1 (35.2-43)	1.83	40.2	04/11/2022#	
2560	1.92 (1.82-2.01)	39.1 (35.1-43)	1.85	40.1	04/11/2022#	
2600	1.96 (1.86-2.06)	39.0 (35.1-42.9)	1.89	38.1	04/10/2022#	
			1.88	40.1	04/11/2022#	
3500	2.91 (2.62-3.2)	37.9 (34.1-41.7)	2.70	40.2	04/27/2022	
3560	2.97 (2.68-3.27)	37.8 (34.1-41.6)	2.70	40.2	04/27/2022	
			2.75	40.1	04/27/2022	

Table 17 (Continue)

Frequency (MHz)	Tissue Type	Conductivity Target (S/m)	Dielectric Constant Target	Conductivity Meas. (S/m)	Dielectric Constant Meas.	Tested Date
3603	IEEE/ IEC Head	3.02 (2.72-3.32)	37.8 (34-41.6)	2.82	40.9	04/15/2022
				2.90	40.8	04/27/2022
3647		3.06 (2.76-3.37)	37.8 (34-41.5)	2.85	38.8	04/13/2022#
				2.83	36.9	04/22/2022
3690		3.11 (2.8-3.42)	37.7 (33.9-41.5)	2.89	38.8	04/13/2022#
				2.90	40.8	04/15/2022
				2.87	39.8	04/27/2022
3700		3.12 (2.81-3.43)	37.7 (33.9-41.5)	2.90	38.8	04/13/2022#
				2.91	40.8	04/15/2022
				2.88	36.8	04/22/2022
	2.88			39.8	04/27/2022	

Note: '#' indicates that tissue test result covers next test day (within 24 hours)

7.0 DUT Test Data for LTE bands

SAR test reduction is applied using the following criteria according to KDB 941225 D05:

- d. Per Section 5.2.1, SAR is required for QPSK 1RB allocation for the largest bandwidth
 - The required channel and RB offset combination with the highest maximum output power is required for SAR.
 - When the reported SAR ≤ 0.8 W/kg, testing of the remaining required test channels are not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
 - When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configuration for that channel.
- e. Per Section 5.2.2, SAR is required for QPSK 50% RB allocation using the largest bandwidth following the same procedures outline in Section 5.2.1.
- f. Per Section 5.2.3, QPSK SAR is not required for 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1RB and 50%RB allocation and the reported for the 1RB and 50% RB allocation is < 0.8 W/kg.
- g. Per Section 5.2.4, SAR test is required for higher modulation when the highest maximum output power for the configuration in higher order modulation is $> 1/2$ dB higher than same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

7.1 Assessment for LTE Band 2 (1850-1910 MHz)

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 941225.

Table 18

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR
					Channel	18700	18900		
Frequency (MHz)					1860.00	1880.00	1900.00		
2	20	QPSK	1	0	23.53	23.78	23.67	25.00	0.00
			1	50	23.34	23.53	23.42		
			1	99	23.61	23.69	23.38		
			50	0	22.38	22.56	22.67	25.00	1.00
			50	25	22.41	22.57	22.50		
			50	50	22.43	22.56	22.48		
		100	0	22.41	22.52	22.58	25.00	1.00	
		16QAM	1	0	22.90	23.00	23.28	25.00	1.00
			1	50	22.72	22.77	23.02		
			1	99	22.95	22.97	23.01		
			50	0	21.49	21.62	21.72	25.00	2.00
			50	25	21.50	21.61	21.60		
			50	50	21.50	21.65	21.55		
		100	0	21.50	21.65	21.66	25.00	2.00	
Channel					18675	18900	19125	Max power (dBm)	Target MPR
Frequency (MHz)					1857.50	1880.00	1902.50		
2	15	QPSK	1	0	23.47	23.58	23.65	25.00	0.00
			1	37	23.42	23.50	23.45		
			1	74	23.52	23.52	23.44		
			36	0	22.46	22.56	22.52	25.00	1.00
			36	20	22.46	22.53	22.47		
			36	39	22.46	22.55	22.45		
			75	0	22.47	22.53	22.47	25.00	1.00
		16QAM	1	0	23.07	22.81	23.04	25.00	1.00
			1	37	23.05	22.69	22.94		
			1	74	23.14	22.76	22.91		
			36	0	21.65	21.67	21.61	25.00	2.00
			36	20	21.62	21.68	21.58		
			36	39	21.63	21.66	21.54		
			75	0	21.61	21.67	21.55	25.00	2.00

Table 18 (Continue)

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR
					18650	18900	19150		
Channel					1855.00	1880.00	1905.00		
Frequency (MHz)					1855.00	1880.00	1905.00		
2	10	QPSK	1	0	23.76	23.75	23.50	25.00	0.00
			1	25	23.48	23.50	23.42		
			1	49	23.75	23.68	23.40		
			25	0	22.52	22.56	22.47	25.00	1.00
			25	13	22.56	22.56	22.46		
			25	25	22.59	22.54	22.43		
		50	0	22.56	22.55	22.42	25.00	1.00	
		16QAM	1	0	23.35	22.96	22.56	25.00	1.00
			1	25	23.13	22.72	22.45		
			1	49	23.37	22.90	22.46		
			25	0	21.67	21.65	21.64	25.00	2.00
			25	13	21.70	21.64	21.62		
			25	25	21.66	21.64	21.59		
		50	0	21.64	21.63	21.58	25.00	2.00	
Channel					18625	18900	19175	Max power (dBm)	Target MPR
Frequency (MHz)					1852.50	1880.00	1907.50		
2	5.0	QPSK	1	0	23.51	23.55	23.46	25.00	0.00
			1	12	23.49	23.50	23.42		
			1	24	23.51	23.51	23.45		
			12	0	22.50	22.53	22.43	25.00	1.00
			12	7	22.48	22.50	22.44		
			12	13	22.51	22.52	22.40		
		25	0	22.50	22.53	22.44	25.00	1.00	
		16QAM	1	0	22.48	22.86	22.59	25.00	1.00
			1	12	22.45	22.85	22.52		
			1	24	22.48	22.91	22.52		
			12	0	21.59	21.63	21.52	25.00	2.00
			12	7	21.59	21.61	21.49		
			12	13	21.56	21.63	21.43		
		25	0	21.65	21.57	21.49	25.00	2.00	
Channel					18615	18900	19185	Max power (dBm)	Target MPR
Frequency (MHz)					1851.50	1880.00	1908.50		
2	3.0	QPSK	1	0	23.51	23.49	23.43	25.00	0.00
			1	7	23.57	23.59	23.52		
			1	14	23.43	23.49	23.41		
			8	0	22.46	22.47	22.40	25.00	1.00
			8	4	22.49	22.50	22.42		
			8	7	22.46	22.49	22.34		
		15	0	22.45	22.49	22.41	25.00	1.00	
		16QAM	1	0	23.02	22.69	22.54	25.00	1.00
			1	7	23.13	22.79	22.54		
			1	14	23.04	22.66	22.47		
			8	0	21.74	21.55	21.52	25.00	2.00
			8	4	21.74	21.59	21.54		
			8	7	21.73	21.54	21.50		
		15	0	21.60	21.53	21.53	25.00	2.00	

Table 18 (Continue)

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR
					18607	18900	19193		
Channel					1850.70	1880.00	1909.30		
Frequency (MHz)					1850.70	1880.00	1909.30		
2	1.4	QPSK	1	0	23.28	23.43	23.32	25.00	0.00
			1	3	23.34	23.50	23.41		
			1	5	23.33	23.45	23.31		
			3	0	23.31	23.44	23.31	25.00	0.00
			3	2	23.45	23.51	23.38		
			3	3	23.39	23.41	23.34		
		6	0	22.40	22.41	22.31	25.00	1.00	
		16QAM	1	0	22.50	22.59	22.39	25.00	1.00
			1	3	22.53	22.70	22.45		
			1	5	22.50	22.60	22.42		
			3	0	22.64	22.45	22.46	25.00	1.00
			3	2	22.74	22.49	22.50		
			3	3	22.70	22.44	22.46		
		6	0	21.50	21.53	21.35	25.00	2.00	

Assessments at the Body

Table below presents the data of the body assessment.

Table 19

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000346A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	1860.0000	0.243	0.12	0.167	0.218	AM-AB-220406-12
		PMLN8126A w/ PMLN7008A		1860.0000	0.243	-0.08	0.177	0.235	AM-AB-220406-13
		PMLN8127A w/ PMLN5407A		1860.0000	0.243	0.27	0.056	0.073	AM-AB-220406-14
		PMLN8127A w/ PMLN5409A		1860.0000	0.243	-0.03	0.073	0.096	AM-AB-220406-15
50 % RB									
AN000346A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	1900.0000	0.175	0.33	0.087	0.126	AM-AB-220407-03#
		PMLN8126A w/ PMLN7008A		1900.0000	0.175	0.17	0.104	0.150	AM-AB-220407-02#
		PMLN8127A w/ PMLN5407A		1900.0000	0.175	0.13	0.035	0.051	AM-AB-220407-01#
		PMLN8127A w/ PMLN5409A		1900.0000	0.175	0.30	0.058	0.084	AM-AB-220406-17
Assessment of Additional Batteries									
AN000346A01	PMNN4804A	PMLN8126A w/ PMLN7008A	None	1860.0000	0.217	0.06	0.161	0.235	AM-AB-220407-04#
	PMNN4805A				0.225	-0.11	0.162	0.234	AM-AB-220407-05#

Assessments at the Face

Table below presents the data of the face assessment.

Table 20

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	1880.0000	0.239	0.17	0.077	0.102	AR-FACE-220407-08#
50 % RB									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	1900.0000	0.185	0.29	0.055	0.075	AR-FACE-220407-09#
Assessment of Additional Batteries									
AN000346A01	PMNN4803A	Radio @ front 2.5cm	None	1880.0000	0.237	0.19	0.080	0.107	AR-FACE-220407-10#
	PMNN4804A				0.223	0.32	0.085	0.121	AR-FACE-220407-11#

Additional Assessments for ISED Canada

As per ISED Notice 2016-DRS001, additional tests were required for the low, mid and high frequency channels for the configuration with the highest SAR value. The SAR results are in Tables below. SAR plot is included in Appendix for the highest configuration.

Table 21

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
Body									
AN000346A01	PMNN4803A	PMLN8126A w/ PMLN7008A	None	1860.0000	0.243	-0.08	0.177	0.235	AM-AB-220406-13
				1880.0000	0.237	0.27	0.194	0.260	AR-AB-220418-03
				1900.0000	0.220	0.26	0.172	0.248	AR-AB-220418-04
Face									
AN000346A01	PMNN4804A	Radio @ front 2.5cm	None	1860.0000	0.217	0.29	0.087	0.127	AR-FACE-220407-12#
				1880.0000	0.223	0.32	0.085	0.121	AR-FACE-220407-11#
				1900.0000	0.218	0.08	0.072	0.105	AR-FACE-220407-13#

7.2 Assessment for LTE Band 4 (1710 – 1755 MHz)

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 941225.

Table 22

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR
					Channel	20175			
Frequency (MHz)					1732.50				
4	20	QPSK	1	0		23.20		25.00	0.00
			1	50		23.24			
			1	99		23.19			
			50	0		22.12		25.00	1.00
			50	25		22.12			
			50	50		22.13			
		100	0		22.07		25.00	1.00	
		16QAM	1	0		22.49		25.00	1.00
			1	50		22.34			
			1	99		22.46			
			50	0		21.18		25.00	2.00
			50	25		21.17			
			50	50		21.19			
			100	0		21.14		25.00	2.00
Channel					20025	20175	20325	Max power (dBm)	Target MPR
Frequency (MHz)					1717.50	1732.50	1747.50		
4	15	QPSK	1	0	23.27	23.20	23.25	25.00	0.00
			1	37	23.15	23.19	23.33		
			1	74	23.21	23.16	23.29		
			36	0	22.16	22.17	22.18	25.00	1.00
			36	20	22.10	22.15	22.25		
			36	39	22.10	22.24	22.28		
			75	0	22.14	22.24	22.25	25.00	1.00
		16QAM	1	0	22.77	22.33	22.65	25.00	1.00
			1	37	22.63	22.32	22.61		
			1	74	22.65	22.33	22.62		
			36	0	21.25	21.29	21.25	25.00	2.00
			36	20	21.21	21.28	21.29		
			36	39	21.19	21.34	21.32		
			75	0	21.25	21.33	21.33	25.00	2.00

Table 22 (Continue)

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR
					20000	20175	20350		
Channel					20000	20175	20350		
Frequency (MHz)					1715.00	1732.50	1750.00		
4	10	QPSK	1	0	23.35	23.19	23.32	25.00	0.00
			1	25	23.21	23.23	23.35		
			1	49	23.12	23.29	23.29		
			25	0	22.10	22.17	22.34		
			25	13	22.12	22.15	22.35		
			25	25	22.13	22.19	22.25		
		16QAM	50	0	22.12	22.15	22.33	25.00	1.00
			1	0	22.73	22.30	22.36	25.00	1.00
			1	25	22.62	22.31	22.24		
			1	49	22.63	22.33	22.30		
			25	0	21.21	21.23	21.46	25.00	2.00
			25	13	21.26	21.26	21.50		
25	25	21.23	21.30	21.45					
50	0	21.19	21.23	21.47	25.00	2.00			
Channel					19975	20175	20375	Max power (dBm)	Target MPR
Frequency (MHz)					1712.50	1732.50	1752.50		
4	5.0	QPSK	1	0	23.16	23.25	23.45	25.00	0.00
			1	12	23.12	23.26	23.46		
			1	24	23.17	23.26	23.45		
			12	0	22.09	22.14	22.25		
			12	7	22.08	22.16	22.26		
			12	13	22.05	22.15	22.25		
		16QAM	25	0	22.09	22.14	22.26	25.00	1.00
			1	0	22.07	22.49	22.35	25.00	1.00
			1	12	22.00	22.48	22.34		
			1	24	22.04	22.50	22.38		
			12	0	21.18	21.25	21.28	25.00	2.00
			12	7	21.13	21.24	21.31		
12	13	21.11	21.21	21.32					
25	0	21.19	21.20	21.40	25.00	2.00			
Channel					19965	20175	20385	Max power (dBm)	Target MPR
Frequency (MHz)					1711.50	1732.50	1753.50		
4	3.0	QPSK	1	0	23.17	23.13	23.29	25.00	0.00
			1	7	23.29	23.27	23.43		
			1	14	23.06	23.12	23.26		
			8	0	22.05	22.08	22.17		
			8	4	22.09	22.12	22.24		
			8	7	22.05	22.12	22.25		
		16QAM	15	0	22.08	22.15	22.24	25.00	1.00
			1	0	22.63	22.28	22.32	25.00	1.00
			1	7	22.70	22.36	22.38		
			1	14	22.59	22.27	22.27		
			8	0	21.31	21.15	21.39	25.00	2.00
			8	4	21.36	21.19	21.37		
8	7	21.32	21.17	21.36					
15	0	21.19	21.17	21.35	25.00	2.00			

Table 22 (Continue)

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR
					19957	20175	20393		
					Channel				
Frequency (MHz)					1710.70	1732.50	1754.30		
4	1.4	QPSK	1	0	23.07	23.12	23.20	25.00	0.00
			1	3	23.22	23.22	23.26		
			1	5	23.12	23.13	23.19		
			3	0	23.10	23.13	23.20	25.00	0.00
			3	2	23.12	23.11	23.31		
			3	3	23.08	23.08	23.27		
		6	0	22.13	22.05	22.07	25.00	1.00	
		16QAM	1	0	22.14	22.11	22.12	25.00	1.00
			1	3	22.23	22.17	22.17		
			1	5	22.12	22.15	22.13		
			3	0	22.01	22.15	22.25	25.00	1.00
			3	2	22.07	22.20	22.40		
			3	3	22.04	22.16	22.34		
			6	0	21.11	21.07	21.15	25.00	2.00

Assessments at the Body

Table below presents the data of the body assessment.

Table 23

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000346A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	1732.5000	0.202	0.17	0.098	0.154	AR-AB-220407-18
		PMLN8126A w/ PMLN7008A		1732.5000	0.202	0.15	0.099	0.155	AM-AB-220407-19
		PMLN8127A w/ PMLN5407A		1732.5000	0.202	0.20	0.027	0.042	AM-AB-220407-20
		PMLN8127A w/ PMLN5409A		1732.5000	0.202	0.05	0.061	0.096	AM-AB-220407-21
50 % RB									
AN000346A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	1732.5000	0.202	-0.38	0.077	0.105	AM-AB-220407-27
		PMLN8126A w/ PMLN7008A		1732.5000	0.202	0.00	0.093	0.116	AM-AB-220407-25
		PMLN8127A w/ PMLN5407A		1732.5000	0.202	0.11	0.039	0.049	AM-AB-220407-23
		PMLN8127A w/ PMLN5409A		1732.5000	0.202	0.25	0.040	0.050	AM-AB-220407-22
Assessment of Additional Batteries									
AN000346A01	PMNN4804A	PMLN8126A w/ PMLN7008A	None	1732.5000	0.206	0.15	0.087	0.134	AM-AB-220408-02#
	PMNN4805A				0.209	0.26	0.083	0.126	AM-AB-220408-03#

Assessments at the Face

Table below presents the data of the face assessment.

Table 24

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	1732.5000	0.211	0.37	0.042	0.063	MA-FACE-220427-07
50 % RB									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	1732.5000	0.163	0.06	0.045	0.069	MA-FACE-220427-09
Assessment of Additional Batteries									
AN000346A01	PMNN4803A	Radio @ front 2.5cm	None	1732.5000	0.202	0.04	0.042	0.052	MA-FACE-220427-10
	PMNN4804A				0.206	0.17	0.046	0.056	MA-FACE-220427-11

Additional Assessments for ISED Canada

LTE Band 4 only has one channel; no additional tests were required for low, mid and high frequency channels as per ISED Notice 2016-DRS001.

7.3 Assessment for LTE Band 5 (824 – 849 MHz)

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 941225.

Table 25

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR		
					Channel	20525					
Frequency (MHz)					836.50						
5	10	QPSK	1	0		22.93		24.30	0.00		
			1	25		22.59					
			1	49		23.15					
			25	0		21.97					
			25	13		22.16					
			25	25		22.08					
		50	0		22.10		24.30	1.00			
		16QAM	1	0		22.22		24.30	1.00		
			1	25		21.80					
			1	49		22.31					
			25	0		21.04					
			25	13		21.25				24.30	2.00
			25	25		21.16					
		50	0		21.17		24.30	2.00			
Channel					20425	20525	20625	Max power (dBm)	Target MPR		
Frequency (MHz)					826.50	836.50	846.50				
5	5.0	QPSK	1	0	23.01	22.69	23.14	24.30	0.00		
			1	12	22.95	22.92	22.30				
			1	24	22.96	23.14	22.62				
			12	0	21.99	22.13	21.75			24.30	1.00
			12	7	22.13	22.13	21.66				
			12	13	22.06	22.08	21.42				
		25	0	22.08	22.10	22.19	24.30	1.00			
		16QAM	1	0	21.90	22.15	22.21	24.30	1.00		
			1	12	21.93	22.32	21.37				
			1	24	21.95	22.46	21.44				
			12	0	21.07	21.23	20.87			24.30	2.00
			12	7	21.20	21.24	20.95				
			12	13	21.12	21.17	20.33				
		25	0	21.21	21.17	21.17	24.30	2.00			

Table 25 (Continue)

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR
					20415	20525	20635		
Channel					20415	20525	20635		
Frequency (MHz)					825.50	836.50	847.50		
5	3.0	QPSK	1	0	23.01	23.05	22.32	24.30	0.00
			1	7	23.05	23.11	23.27		
			1	14	22.95	23.15	22.40		
			8	0	22.00	22.09	21.76	24.30	1.00
			8	4	22.01	22.13	21.32		
			8	7	22.01	22.09	21.75		
		15	0	22.03	22.11	21.66	24.30	1.00	
		16QAM	1	0	22.50	22.25	22.39	24.30	1.00
			1	7	22.61	22.35	22.39		
			1	14	22.48	22.29	21.50		
			8	0	21.24	21.14	20.37	24.30	2.00
			8	4	21.29	21.21	20.61		
			8	7	21.17	21.13	20.89		
		15	0	21.11	21.12	20.73	24.30	2.00	
Channel					20407	20525	20643	Max power (dBm)	Target MPR
Frequency (MHz)					824.70	836.50	848.30		
5	1.4	QPSK	1	0	22.93	22.97	22.79	24.30	0.00
			1	3	22.96	23.06	22.93		
			1	5	22.92	22.98	22.38		
			3	0	22.94	22.97	22.83	24.30	0.00
			3	2	23.00	23.04	22.67		
			3	3	22.91	22.97	22.48		
		6	0	21.96	22.00	21.67	24.30	1.00	
		16QAM	1	0	22.08	22.05	21.80	24.30	1.00
			1	3	22.15	22.13	21.81		
			1	5	22.10	22.07	21.57		
			3	0	21.94	22.09	22.01	24.30	1.00
			3	2	21.98	22.16	21.96		
			3	3	21.94	22.09	21.82		
		6	0	21.03	21.03	20.80	24.30	2.00	

Assessments at the Body

Table below presents the data of the body assessment.

Table 26

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000343A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	836.5000	0.207	-0.01	0.235	0.308	AR-AB-220408-11
		PMLN8126A w/ PMLN7008A		836.5000	0.207	0.17	0.231	0.302	AR-AB-220408-12
		PMLN8127A w/ PMLN5407A		836.5000	0.207	0.05	0.144	0.188	AR-AB-220408-13
		PMLN8127A w/ PMLN5409A		836.5000	0.207	0.03	0.141	0.184	AR-AB-220408-14
50 % RB									
AN000343A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	836.5000	0.165	0.02	0.177	0.229	AR-AB-220408-15
		PMLN8126A w/ PMLN7008A		836.5000	0.165	-0.13	0.172	0.229	AR-AB-220408-16
		PMLN8127A w/ PMLN5407A		836.5000	0.165	0.12	0.108	0.140	AR-AB-220408-17
		PMLN8127A w/ PMLN5409A		836.5000	0.165	0.07	0.108	0.140	AR-AB-220408-18
Assessment of Additional Batteries									
AN000343A01	PMNN4804A	PMLN8126A w/ PMLN4651A	None	836.5000	0.206	0.05	0.257	0.338	AR-AB-220408-19
	PMNN4805A				0.207	0.03	0.235	0.307	AR-AB-220408-20

Assessments at the Face

Table below presents the data of the face assessment.

Table 27

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000343A01	PMNN4805A	Radio @ front 2.5cm	None	836.5000	0.207	-0.05	0.161	0.213	AM-FACE-220408-21
50 % RB									
AN000343A01	PMNN4805A	Radio @ front 2.5cm	None	836.5000	0.164	0.11	0.117	0.152	AM-FACE-220408-22
Assessment of Additional Batteries									
AN000343A01	PMNN4803A	Radio @ front 2.5cm	None	836.5000	0.207	-0.14	0.157	0.212	AM-FACE-220408-23
	PMNN4804A				0.206	0.06	0.168	0.221	AM-FACE-220408-24

Additional Assessments for ISED Canada

LTE Band 5 only has one channel; no additional tests were required for low, mid and high frequency channels as per ISED Notice 2016-DRS001.

7.4 Assessment for LTE Band 7 (2500-2570 MHz)

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 941225.

Table 28

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR	
					Channel	20850	21100			21350
Frequency (MHz)					2510.00	2535.00	2560.00			
7	20	QPSK	1	0	22.74	22.51	22.25	24.00	0.00	
			1	50	22.65	22.40	22.32			
			1	99	22.39	22.32	22.06			
			50	0	21.69	21.39	21.36			
			50	25	21.67	21.41	21.39			
			50	50	21.47	21.35	21.33			
		16QAM	100	0	21.61	21.40	21.35	24.00	1.00	
			1	0	22.11	21.74	21.87	24.00	1.00	
			1	50	22.00	21.65	21.91			
			1	99	21.74	21.60	21.64			
			16QAM	50	0	20.72	20.48	20.41	24.00	2.00
				50	25	20.76	20.50	20.46		
				50	50	20.52	20.43	20.41		
				100	0	20.69	20.49	20.40		
Channel					20825	21100	21375	Max power (dBm)	Target MPR	
Frequency (MHz)					2507.50	2535.00	2562.50			
7	15	QPSK	1	0	22.73	22.47	22.32	24.00	0.00	
			1	37	22.63	22.38	22.21			
			1	74	22.51	22.28	22.02			
			36	0	21.63	21.41	21.34			
			36	20	21.64	21.42	21.37			
			36	39	21.59	21.37	21.23			
			75	0	21.63	21.36	21.30			
		16QAM	1	0	22.33	21.68	21.78	24.00	1.00	
			1	37	22.24	21.61	21.64			
			1	74	22.10	21.50	21.51			
			36	0	20.77	20.54	20.43			
			36	20	20.74	20.52	20.43			
			36	39	20.69	20.49	20.29			
			75	0	20.75	20.45	20.38			

Table 28 (Continue)

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR
					20800	21100	21400		
Channel					20800	21100	21400		
Frequency (MHz)					2505.00	2535.00	2565.00		
7	10	QPSK	1	0	22.88	22.48	22.45	24.00	0.00
			1	25	22.79	22.45	22.28		
			1	49	22.67	22.43	22.02		
			25	0	21.81	21.43	21.40	24.00	1.00
			25	13	21.70	21.47	21.29		
			25	25	21.68	21.44	21.27		
		50	0	21.67	21.44	21.38	24.00	1.00	
		16QAM	1	0	22.08	21.53	22.01	24.00	1.00
			1	25	21.99	21.53	21.82		
			1	49	21.86	21.52	21.57		
			25	0	20.92	20.63	20.51	24.00	2.00
			25	13	20.82	20.60	20.41		
			25	25	20.74	20.53	20.40		
		50	0	20.73	20.54	20.44	24.00	2.00	
Channel					20775	21100	21425		
Frequency (MHz)					2502.50	2535.00	2567.50		
7	5.0	QPSK	1	0	22.75	22.37	22.26	24.00	0.00
			1	12	22.78	22.38	22.21		
			1	24	22.74	22.34	22.18		
			12	0	21.77	21.42	21.27	24.00	1.00
			12	7	21.85	21.47	21.31		
			12	13	21.76	21.40	21.22		
		25	0	21.76	21.41	21.27	24.00	1.00	
		16QAM	1	0	21.95	21.37	21.57	24.00	1.00
			1	12	21.92	21.41	21.44		
			1	24	21.86	21.40	21.44		
			12	0	20.87	20.52	20.38	24.00	2.00
			12	7	20.86	20.51	20.36		
			12	13	20.82	20.49	20.33		
		25	0	20.86	20.52	20.33	24.00	2.00	

Assessments at the Body

Table below presents the data of the body assessment.

Table 29

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000346A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	2510.0000	0.185	-0.06	0.061	0.084	AR-AB-220410-19
		PMLN8126A w/ PMLN7008A		2510.0000	0.185	0.35	0.074	0.101	AR-AB-220410-20
		PMLN8127A w/ PMLN5407A		2510.0000	0.185	0.02	0.025	0.034	AR-AB-220412-05#
		PMLN8127A w/ PMLN5409A		2510.0000	0.185	0.27	0.025	0.034	AR-AB-220411-01#
50 % RB									
AN000346A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	2510.0000	0.145	-0.29	0.049	0.072	AR-AB-220411-02#
		PMLN8126A w/ PMLN7008A		2510.0000	0.145	0.17	0.070	0.097	AR-AB-220411-03#
		PMLN8127A w/ PMLN5407A		2510.0000	0.145	0.18	0.027	0.037	AR-AB-220412-06#
		PMLN8127A w/ PMLN5409A		2510.0000	0.145	0.47*	0.022	0.030	AR-AB-220411-07#
Assessment of Additional Batteries									
AN000346A01	PMNN4804A	PMLN8126A w/ PMLN7008A	None	2510.0000	0.184	0.17	0.073	0.100	MA-AB-220412-10#
	PMNN4805A				0.188	0.32	0.091	0.122	MA-AB-220412-11#

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Assessments at the Face

Table below presents the data of the face assessment.

Table 30

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	2510.0000	0.188	0.18	0.045	0.060	AR-FACE-220411-10
50 % RB									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	2510.0000	0.148	0.45	0.034	0.046	AR-FACE-220411-11
Assessment of Additional Batteries									
AN000346A01	PMNN4803A	Radio @ front 2.5cm	None	2510.0000	0.185	0.34	0.039	0.053	AR-FACE-220412-01#
	PMNN4804A				0.184	0.42	0.034	0.047	AR-FACE-220412-02#

Additional Assessments for ISED Canada

As per ISED Notice 2016-DRS001, additional tests were required for the low, mid and high frequency channels for the configuration with the highest SAR value. The SAR results are in Tables below. SAR plot is included in Appendix for the highest configuration.

Table 31

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
Body									
AN000346A01	PMNN4805A	PMLN8126A w/ PMLN7008A	None	2510.0000	0.188	0.32	0.091	0.122	MA-AB-220412-11#
				2535.0000	0.178	0.42	0.078	0.110	MA-AB-220412-13#
				2560.0000	0.168	-0.04	0.074	0.112	MA-AB-220412-16#
Face									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	2510.0000	0.188	0.18	0.045	0.060	AR-FACE-220411-10
				2535.0000	0.178	0.33	0.038	0.054	AR-FACE-220412-03#
				2560.0000	0.168	0.32	0.040	0.060	AR-FACE-220412-04#

7.5 Assessment for LTE Band 12 (699-716 MHz)

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 941225.

Table 32

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR
					Channel	23095			
Frequency (MHz)					707.50				
12	10	QPSK	1	0		23.96		25.00	0.00
			1	25		23.97			
			1	49		23.93			
			25	0		23.07		25.00	1.00
			25	13		23.07			
			25	25		23.03			
		16QAM	50	0		23.05		25.00	1.00
			1	0		23.52		25.00	1.00
			1	25		23.55			
			1	49		23.46			
			25	0		22.18		25.00	2.00
			25	13		22.17			
			25	25		22.13			
			50	0		22.13		25.00	2.00
Channel					23035	23095	23155	Max power (dBm)	Target MPR
Frequency (MHz)					701.50	707.50	713.50		
12	5.0	QPSK	1	0	23.09	23.97	23.86	25.00	0.00
			1	12	23.57	23.98	23.56		
			1	24	23.90	24.03	23.74		
			12	0	22.26	23.01	22.96	25.00	1.00
			12	7	22.67	23.03	22.96		
			12	13	22.99	22.99	22.96		
		25	0	22.75	23.01	22.94	25.00	1.00	
		16QAM	1	0	22.07	23.31	23.04	25.00	1.00
			1	12	22.54	23.32	22.74		
			1	24	22.94	23.31	22.89		
			12	0	21.43	22.13	22.03	25.00	2.00
			12	7	21.77	22.12	22.00		
			12	13	22.06	22.09	21.98		
			25	0	21.90	22.07	22.04	25.00	2.00

Table 32 (Continue)

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR
					Channel	23025	23095		
Frequency (MHz)					700.50	707.50	714.50		
12	3.0	QPSK	1	0	23.16	24.02	23.92	25.00	0.00
			1	7	23.32	24.06	23.96		
			1	14	23.82	23.96	23.87		
			8	0	22.19	22.97	22.91	25.00	1.00
			8	4	22.22	23.00	22.93		
			8	7	22.52	22.93	22.90		
		15	0	22.37	23.00	22.95	25.00	1.00	
		16QAM	1	0	22.71	23.19	22.99	25.00	1.00
			1	7	22.81	23.24	23.03		
			1	14	23.34	23.14	22.98		
			8	0	21.48	22.04	22.04	25.00	2.00
			8	4	21.55	22.04	22.07		
			8	7	21.74	22.02	22.01		
		15	0	21.49	22.02	22.05	25.00	2.00	
Channel					23017	23095	23173	Max power (dBm)	Target MPR
Frequency (MHz)					699.70	707.50	715.30		
12	1.4	QPSK	1	0	23.18	23.92	23.92	25.00	0.00
			1	3	23.28	23.95	23.94		
			1	5	23.23	23.87	23.92		
			3	0	23.05	23.90	23.86	25.00	0.00
			3	2	23.10	23.95	23.96		
			3	3	24.05	23.81	23.88		
		6	0	22.00	22.90	22.92	25.00	1.00	
		16QAM	1	0	22.15	23.05	23.00	25.00	1.00
			1	3	22.21	23.14	23.04		
			1	5	22.15	23.07	22.96		
			3	0	22.32	22.95	22.96	25.00	1.00
			3	2	22.34	22.98	22.98		
			3	3	22.30	22.90	22.94		
		6	0	21.20	21.99	21.86	25.00	2.00	

Assessments at the Body

Table below presents the data of the body assessment.

Table 33

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000343A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	707.5000	0.260	0.01	0.155	0.189	AM-AB-220410-02#
		PMLN8126A w/ PMLN7008A		707.5000	0.260	0.10	0.150	0.183	AM-AB-220410-03#
		PMLN8127A w/ PMLN5407A		707.5000	0.260	0.09	0.110	0.134	AM-AB-220410-04#
		PMLN8127A w/ PMLN5409A		707.5000	0.260	-0.21	0.114	0.146	AM-AB-220410-05#
50 % RB									
AN000343A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	707.5000	0.211	0.00	0.132	0.158	MA-AB-220410-07
		PMLN8126A w/ PMLN7008A		707.5000	0.211	0.06	0.127	0.152	MA-AB-220410-08
		PMLN8127A w/ PMLN5407A		707.5000	0.211	0.10	0.091	0.109	MA-AB-220410-10
		PMLN8127A w/ PMLN5409A		707.5000	0.211	-0.20	0.089	0.111	MA-AB-220410-11
Assessment of Additional Batteries									
AN000343A01	PMNN4804A	PMLN8126A w/ PMLN4651A	None	707.5000	0.259	-0.27	0.157	0.204	MA-AB-220410-12
	PMNN4805A				0.250	0.09	0.170	0.216	MA-AB-220410-13

Assessments at the Face

Table below presents the data of the face assessment.

Table 34

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000343A01	PMNN4805A	Radio @ front 2.5cm	None	707.5000	0.250	-0.25	0.133	0.179	MA-FACE-220410-14
50 % RB									
AN000343A01	PMNN4805A	Radio @ front 2.5cm	None	707.5000	0.203	0.01	0.103	0.128	MA-FACE-220410-15
Assessment of Additional Batteries									
AN000343A01	PMNN4803A	Radio @ front 2.5cm	None	707.5000	0.260	0.07	0.137	0.167	MA-FACE-220410-16
	PMNN4804A				0.259	0.07	0.135	0.165	MA-FACE-220410-17

Additional Assessments for ISED Canada

LTE Band 12 only has one channel; no additional tests were required for low, mid and high frequency channels as per ISED Notice 2016-DRS001.

7.6 Assessment for LTE Band 13 (777-787 MHz)

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 941225.

Table 35

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)			Max power (dBm)	Target MPR
						23230			
Channel						23230			
Frequency (MHz)						782.00			
13	10	QPSK	1	0		23.11		25.00	0.00
			1	25		23.42			
			1	49		23.41			
			25	0		22.51		25.00	1.00
			25	13		22.56			
			25	25		22.48			
		16QAM	50	0		22.50		25.00	1.00
			1	0		22.70		25.00	1.00
			1	25		23.07			
			1	49		23.02			
			25	0		21.65		25.00	2.00
			25	13		21.64			
			25	25		21.59			
			50	0		21.58		25.00	2.00
Channel						23230			
Frequency (MHz)						782.00			
13	5.0	QPSK	1	0		23.39		25.00	0.00
			1	12		23.45			
			1	24		23.41			
			12	0		22.50		25.00	1.00
			12	7		22.50			
			12	13		22.51			
		25	0		22.50		25.00	1.00	
		16QAM	1	0		22.39		25.00	1.00
			1	12		22.43			
			1	24		22.44			
			12	0		21.59		25.00	2.00
			12	7		21.61			
			12	13		21.55			
			25	0		21.62		25.00	2.00

Assessments at the Body

Table below presents the data of the body assessment.

Table 36

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000343A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	782.0000	0.221	0.05	0.157	0.225	AM-AB-220408-25
		PMLN8126A w/ PMLN7008A		782.0000	0.221	0.10	0.156	0.224	AM-AB-220408-26
		PMLN8127A w/ PMLN5407A		782.0000	0.221	0.11	0.102	0.146	AM-AB-220408-27
		PMLN8127A w/ PMLN5409A		782.0000	0.221	0.14	0.106	0.152	AM-AB-220408-28
50 % RB									
AN000343A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	782.0000	0.188	0.02	0.125	0.168	AM-AB-220408-29
		PMLN8126A w/ PMLN7008A		782.0000	0.188	0.11	0.123	0.165	AM-AB-220408-30
		PMLN8127A w/ PMLN5407A		782.0000	0.188	0.10	0.084	0.113	AM-AB-220409-01#
		PMLN8127A w/ PMLN5409A		782.0000	0.188	0.14	0.085	0.114	AM-AB-220409-02#
Assessment of Additional Batteries									
AN000343A01	PMNN4804A	PMLN8126A w/ PMLN4651A	None	782.0000	0.225	0.11	0.135	0.190	AM-AB-220409-03#
	PMNN4805A				0.220	0.02	0.129	0.186	AM-AB-220409-04#

Assessments at the Face

Table below presents the data of the face assessment.

Table 37

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000343A01	PMNN4805A	Radio @ front 2.5cm	None	782.0000	0.220	0.10	0.107	0.154	MA-FACE-220409-10
50 % RB									
AN000343A01	PMNN4805A	Radio @ front 2.5cm	None	782.0000	0.180	0.19	0.085	0.119	MA-FACE-220409-11
Assessment of Additional Batteries									
AN000343A01	PMNN4803A	Radio @ front 2.5cm	None	782.0000	0.221	0.11	0.113	0.162	MA-FACE-220409-12
	PMNN4804A				0.225	0.16	0.098	0.138	MA-FACE-220409-13

Additional Assessments for ISED Canada

LTE Band 13 only has one channel; no additional tests were required for low, mid and high frequency channels as per ISED Notice 2016-DRS001.

7.7 Assessment for LTE Band 14 (788-798 MHz)

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 941225.

Table 38

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)		Max power (dBm)	Target MPR
					Channel	Frequency (MHz)		
14	10	QPSK	1	0		23.29	25.00	0.00
			1	25		23.44		
			1	49		23.20		
			25	0		22.53	25.00	1.00
			25	13		22.55		
			25	25		22.49		
			50	0		22.46	25.00	1.00
		16QAM	1	0		22.84	25.00	1.00
			1	25		22.99		
			1	49		22.63		
			25	0		21.66	25.00	2.00
			25	13		21.65		
			25	25		21.61		
			50	0		21.55	25.00	2.00
Channel					23330		Max power (dBm)	Target MPR
Frequency (MHz)					793.00			
14	5.0	QPSK	1	0		23.40	25.00	0.00
			1	12		23.43		
			1	24		23.37		
			12	0		22.47	25.00	1.00
			12	7		22.46		
			12	13		22.46		
			25	0		22.48	25.00	1.00
		16QAM	1	0		22.35	25.00	1.00
			1	12		22.40		
			1	24		22.35		
			12	0		21.54	25.00	2.00
			12	7		21.54		
			12	13		21.54		
			25	0		21.61	25.00	2.00

Assessments at the Body

Table below presents the data of the body assessment.

Table 39

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000343A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	793.0000	0.224	0.07	0.156	0.221	MA-AB-220409-18
		PMLN8126A w/ PMLN7008A		793.0000	0.224	0.07	0.154	0.218	MA-AB-220409-19
		PMLN8127A w/ PMLN5407A		793.0000	0.224	0.09	0.102	0.144	AM-AB-220409-20
		PMLN8127A w/ PMLN5409A		793.0000	0.224	0.17	0.108	0.153	AM-AB-220409-21
50 % RB									
AN000343A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	793.0000	0.187	0.18	0.124	0.167	AM-AB-220409-22
		PMLN8126A w/ PMLN7008A		793.0000	0.187	-0.24	0.121	0.173	AM-AB-220409-23
		PMLN8127A w/ PMLN5407A		793.0000	0.187	0.02	0.082	0.111	AM-AB-220409-24
		PMLN8127A w/ PMLN5409A		793.0000	0.187	0.13	0.078	0.105	AM-AB-220409-25
Assessment of Additional Batteries									
AN000343A01	PMNN4804A	PMLN8126A w/ PMLN4651A	None	793.0000	0.221	-0.01	0.141	0.203	AM-AB-220409-26
	PMNN4805A				0.221	0.13	0.140	0.201	AM-AB-220409-27

Assessments at the Face

Table below presents the data of the face assessment.

Table 40

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000343A01	PMNN4805A	Radio @ front 2.5cm	None	793.0000	0.221	0.10	0.116	0.167	MA-FACE-220409-14
50 % RB									
AN000343A01	PMNN4805A	Radio @ front 2.5cm	None	793.0000	0.180	0.12	0.094	0.132	MA-FACE-220409-15
Assessment of Additional Batteries									
AN000343A01	PMNN4803A	Radio @ front 2.5cm	None	793.0000	0.224	0.11	0.115	0.163	MA-FACE-220409-16
	PMNN4804A				0.221	0.17	0.106	0.152	MA-FACE-220409-17

Additional Assessments for ISED Canada

LTE Band 14 only has one channel; no additional tests were required for low, mid and high frequency channels as per ISED Notice 2016-DRS001.

7.8 Assessment for LTE Band 17 (704-716 MHz)

Band 17 is contained within band 12 (699-716 MHz), with same maximum output power (including tune-up tolerance). Thus, band 12 SAR covers band 17 and no SAR test is required.

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 941225.

Table 41

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)		Max power (dBm)	Target MPR	
Channel						23790			
Frequency (MHz)						710.00			
17	10	QPSK	1	0		23.43		25.00	0.00
			1	25		23.46			
			1	49		23.36			
			25	0		22.59		25.00	1.00
			25	13		22.56			
			25	25		22.53			
		16QAM	50	0		22.55		25.00	1.00
			1	0		22.78		25.00	1.00
			1	25		22.79			
			1	49		22.73			
			25	0		21.72		25.00	2.00
			25	13		21.69			
			25	25		21.66			
			50	0		21.61		25.00	2.00
Channel						23790			
Frequency (MHz)						710.00			
17	5.0	QPSK	1	0		23.41		25.00	0.00
			1	12		23.48			
			1	24		23.45			
			12	0		22.55		25.00	1.00
			12	7		22.55			
			12	13		22.53			
			25	0		22.55		25.00	1.00
		16QAM	1	0		22.79		25.00	1.00
			1	12		22.80			
			1	24		22.80			
			12	0		21.59		25.00	2.00
			12	7		21.59			
			12	13		21.53			
			25	0		21.60		25.00	2.00

7.9 Assessment for LTE Band 30 (2305-2315 MHz)

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 941225.

Table 42

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)		Max power (dBm)	Target MPR	
						27710			
Channel						27710			
Frequency (MHz)						2310.00			
30	10	QPSK	1	0		23.09		24.00	0.00
			1	25		23.03			
			1	49		22.88			
			25	0		22.26		24.00	1.00
			25	13		22.24			
			25	25		22.06			
		50	0		22.09		24.00	1.00	
		16QAM	1	0		22.85		24.00	1.00
			1	25		22.98			
			1	49		22.59			
			25	0		21.73		24.00	2.00
			25	13		21.56			
			25	25		21.10			
		50	0		21.18		24.00	2.00	
Channel						27710			
Frequency (MHz)						2310.00			
30	5.0	QPSK	1	0		23.20		24.00	0.00
			1	12		23.06			
			1	24		23.02			
			12	0		22.21		24.00	1.00
			12	7		22.08			
			12	13		22.04			
		25	0		22.08		24.00	1.00	
		16QAM	1	0		22.62		24.00	1.00
			1	12		22.42			
			1	24		22.40			
			12	0		21.19		24.00	2.00
			12	7		21.10			
			12	13		21.15			
		25	0		21.17		24.00	2.00	

Assessments at the Body

Table below presents the data of the body assessment.

Table 43

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000346A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	2310.0000	0.216	0.17	0.084	0.098	MA-AB-220412-18
		PMLN8126A w/ PMLN7008A		2310.0000	0.216	0.06	0.086	0.100	MA-AB-220412-19
		PMLN8127A w/ PMLN5407A		2310.0000	0.216	0.02	0.022	0.026	MA-AB-220412-21
		PMLN8127A w/ PMLN5409A		2310.0000	0.216	0.35	0.030	0.035	MA-AB-220412-22
50 % RB									
AN000346A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	2310.0000	0.168	0.23	0.064	0.076	AR-AB-220412-23
		PMLN8126A w/ PMLN7008A		2310.0000	0.168	0.01	0.068	0.081	AR-AB-220412-24
		PMLN8127A w/ PMLN5407A		2310.0000	0.168	0.64*	0.027	0.032	AR-AB-220412-27
		PMLN8127A w/ PMLN5409A		2310.0000	0.168	0.24	0.043	0.051	AR-AB-220413-02#
Assessment of Additional Batteries									
AN000346A01	PMNN4804A	PMLN8126A w/ PMLN7008A	None	2310.0000	0.216	-0.12	0.094	0.113	AR-AB-220413-03#
	PMNN4805A				0.204	0.42	0.083	0.103	AR-AB-220413-04#

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Assessments at the Face

Table below presents the data of the face assessment.

Table 44

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	2310.0000	0.204	-0.21	0.037	0.048	AR-FACE-220413-07#
50 % RB									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	2310.0000	0.168	0.02	0.030	0.036	AM-FACE-220413-09#
Assessment of Additional Batteries									
AN000346A01	PMNN4803A	Radio @ front 2.5cm	None	2310.0000	0.216	0.67*	0.037	0.043	AM-FACE-220413-12#
	PMNN4804A				0.216	0.68*	0.037	0.043	AM-FACE-220413-15#

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Additional Assessments for ISED Canada

LTE Band 30 only has one channel; no additional tests were required for low, mid and high frequency channels as per ISED Notice 2016-DRS001.

7.10 Assessment for LTE Band 48 (3550-3700 MHz)

Output Power Data

These power measurements were used to determine the necessary modes for SAR testing according to KDB 941225.

Table 45

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)				Max power (dBm)	Target MPR
					55340	55773	56207	56640		
Channel					55340	55773	56207	56640		
Frequency (MHz)					3560.00	3603.30	3646.70	3690.00		
48	20	QPSK	1	0	22.52	22.78	22.78	22.28	24.00	0.00
			1	50	22.47	22.78	22.83	22.23		
			1	99	22.51	22.94	22.82	22.31		
			50	0	21.82	21.94	22.05	22.13		
			50	25	21.89	22.01	22.02	22.10		
			50	50	21.84	22.05	22.07	22.05		
			100	0	21.80	22.03	22.06	22.11		
		16QAM	1	0	22.28	22.18	22.07	22.08	24.00	1.00
			1	50	22.23	22.13	22.07	22.04		
			1	99	22.25	22.26	22.12	22.04		
			50	0	20.99	21.08	21.18	21.18		
			50	25	21.04	21.17	21.26	21.13		
			50	50	20.98	21.21	21.28	21.15		
			100	0	20.91	21.06	21.14	21.15		
Channel					55315	55765	56215	56665		
Frequency (MHz)					3557.50	3602.50	3647.50	3692.50		
48	15	QPSK	1	0	22.54	22.81	22.87	22.25	24.00	0.00
			1	37	22.59	22.77	22.92	22.34		
			1	74	22.61	22.93	23.01	22.41		
			36	0	21.90	21.98	22.02	21.98		
			36	20	21.97	22.02	22.01	22.03		
			36	39	21.96	22.14	22.09	22.04		
			75	0	21.76	22.11	22.08	22.05		
		16QAM	1	0	21.81	22.42	22.24	21.57	24.00	1.00
			1	37	21.70	22.34	22.25	21.58		
			1	74	21.91	22.49	22.30	21.64		
			36	0	21.06	21.13	21.21	21.13		
			36	20	21.10	21.20	21.23	21.19		
			36	39	21.03	21.21	21.26	21.20		
			75	0	21.06	21.21	21.25	21.18		

Table 45 (Continue)

Band	BW (MHz)	Modulation	RB Size	RB Offset	Measured power (dBm)				Max power (dBm)	Target MPR
Channel					55290	55757	56223	56690	Max power (dBm)	Target MPR
Frequency (MHz)					3555.00	3601.70	3648.30	3695.00		
48	10	QPSK	1	0	22.62	22.77	22.65	22.25	24.00	0.00
			1	25	22.66	22.71	22.75	22.22		
			1	49	22.70	22.78	22.83	22.28		
			25	0	21.86	21.95	21.94	22.00	24.00	1.00
			25	13	21.90	21.98	22.03	21.98		
			25	25	21.85	21.81	22.00	21.97		
		50	0	21.82	21.93	21.99	21.95	24.00	1.00	
		16QAM	1	0	21.73	21.97	22.17	21.46	24.00	1.00
			1	25	21.75	21.91	22.13	21.47		
			1	49	21.84	22.04	22.16	21.58		
			25	0	20.88	20.95	21.11	20.97	24.00	2.00
			25	13	20.91	21.05	21.05	21.06		
			25	25	20.91	20.96	21.13	21.07		
		50	0	20.84	20.98	20.99	20.92	24.00	2.00	
Channel					55265	55748	56232	56715	Max power (dBm)	Target MPR
Frequency (MHz)					3552.50	3600.80	3649.20	3697.50		
48	5.0	QPSK	1	0	22.33	22.77	22.80	22.27	24.00	0.00
			1	12	22.38	22.67	22.75	22.24		
			1	24	22.44	22.72	22.80	22.28		
			12	0	21.87	21.91	22.01	22.04	24.00	1.00
			12	7	21.88	22.03	22.08	22.08		
			12	13	21.87	21.99	22.05	22.06		
		25	0	21.86	21.99	22.03	22.03	24.00	1.00	
		16QAM	1	0	21.98	22.62	22.20	21.78	24.00	1.00
			1	12	21.92	22.42	22.13	21.70		
			1	24	21.97	22.52	22.19	21.75		
			12	0	21.01	21.07	21.18	21.12	24.00	2.00
			12	7	21.05	21.07	21.16	21.11		
			12	13	20.97	21.03	21.17	21.14		
		25	0	20.94	21.11	21.19	21.11	24.00	2.00	

Assessments at the Body

Table below presents the data of the body assessment.

Table 46

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000346A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	3646.7000	0.193	1.04*	0.037	0.048	AR-AB-220413-21
		PMLN8126A w/ PMLN7008A		3646.7000	0.193	1.70*	0.033	0.043	AR-AB-220414-03#
		PMLN8127A w/ PMLN5407A		3646.7000	0.193	0.24	0.036	0.047	AR-AB-220414-04#
		PMLN8127A w/ PMLN5409A		3646.7000	0.193	0.51*	0.040	0.052	AR-AB-220414-05#
50 % RB									
AN000346A01	PMNN4803A	PMLN8126A w/ PMLN4651A	None	3646.7000	0.160	2.59*	0.034	0.043	AM-AB-220414-07#
		PMLN8126A w/ PMLN7008A		3646.7000	0.160	-0.18	0.033	0.043	BAD-AB-220422-04
		PMLN8127A w/ PMLN5407A		3646.7000	0.160	4.23*	0.022	0.028	AM-AB-220414-11#
		PMLN8127A w/ PMLN5409A		3646.7000	0.160	0.96*	0.021	0.026	AM-AB-220414-13#
Assessment of Additional Batteries									
AN000346A01	PMNN4804A	PMLN8127A w/ PMLN5409A	None	3646.7000	0.194	0.41	0.034	0.044	AM-AB-220414-15#
	PMNN4805A				0.191	1.90*	0.037	0.049	AM-AB-220414-16#

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Assessments at the Face

Table below presents the data of the face assessment.

Table 47

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
1 RB									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	3603.3000	0.197	0.07	0.041	0.053	AM-FACE-220415-08
50 % RB									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	3690.0000	0.163	3.42*	0.036	0.044	AM-FACE-220415-11
Assessment of Additional Batteries									
AN000346A01	PMNN4803A	Radio @ front 2.5cm	None	3603.3000	0.191	2.08*	0.026	0.034	MA-FACE-220427-12
	PMNN4804A				0.193	3.04*	0.024	0.031	MA-FACE-220427-16

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

Additional Assessments for ISED Canada

As per ISED Notice 2016-DRS001, additional tests were required for the low, mid and high frequency channels for the configuration with the highest SAR value. The SAR results are in Tables below. SAR plot is included in Appendix for the highest configuration.

Table 48

Antenna	Battery	Carry Accessory	Cable Accessory	Test Freq (MHz)	Init Pwr (W)	SAR Drift (dB)	Meas. 1g-SAR (W/kg)	Max Calc. 1g-SAR (W/kg)	Run#
Body									
AN000346A01	PMNN4803A	PMLN8127A w/ PMLN5409A	None	3560.0000	0.179	1.32*	0.026	0.036	MA-AB-220415-03#
				3646.7000	0.193	0.51*	0.040	0.052	AR-AB-220414-05#
				3690.0000	0.169	0.49*	0.033	0.049	AM-AB-220414-18#
Face									
AN000346A01	PMNN4805A	Radio @ front 2.5cm	None	3560.0000	0.178	5.66*	0.018	0.025	MA-FACE-220427-19
				3603.3000	0.197	0.07	0.041	0.053	AM-FACE-220415-08
				3690.0000	0.170	4.02*	0.027	0.040	MA-FACE-220427-17

Note: * Measured SAR value is low enough where a SAR drift measurement was not practical

8.0 Variability Assessment for LTE Bands

Per the guidelines in KDB 865664 SAR variability assessment is not required because SAR results are below 0.8W/kg.