



# FCC SAR TEST REPORT

**FCC ID** : 2AJN7-TP00159ALQ  
**Equipment** : Notebook Computer  
**Brand Name** : Lenovo  
**Model Name** : TP00159D, TP00159E  
**Applicant** : LC Future Center Limited Taiwan Branch  
7F., No.780, Beian Rd., Zhongshan Dist., Taipei 104, Taiwan  
**Manufacturer** : Lenovo PC HK Limited  
23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry  
Bay, Hong Kong, P.R. China  
**Standard** : FCC 47 CFR Part 2 (2.1093)

Equipment: Quectel EM160R-GL, Intel AX211D2W and Intel BE201D2W tested inside of  
Lenovo Notebook Computer.

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide  
by manufacturer and the test data has been evaluated in accordance with the test  
procedures given in 47 CFR Part 2.1093 and FCC KDB and has been pass the FCC  
requirement.

The test results in this report apply exclusively to the tested model / sample. Without  
written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be  
reproduced except in full.

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Approved by: Cona Huang / Deputy Manager



***Sporton International Inc. Wensan Laboratory***



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### Appendix A. Test Setup Photos and Antenna Location



## History of this test report



## 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) for LC Future Center Limited Taiwan Branch, Notebook Computer, TP00159D, TP00159E, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary		Highest Simultaneous Transmission 1g SAR (W/kg)	
		Body			
		1g SAR (W/kg)			
Licensed	WCDMA	WCDMA II	1.19	1.19	
		WCDMA IV	1.13		
		WCDMA V	1.07		
	LTE	LTE Band 7	1.11		
		LTE Band 12	1.09		
		LTE Band 13	1.07		
		LTE Band 14	1.09		
		LTE Band 2/25	1.14		
		LTE Band 5/26	1.12		
		LTE Band 30	1.18		
		LTE Band 38	0.37		
		LTE Band 41	0.65		
		LTE Band 48	1.18		
		LTE Band 66	1.19		

Sportun Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation and the FCC designation No. TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

Reviewed by: Jason Wang

Report Producer: Paula Chen

## 2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards, the below KDB standard may not including in the TAF code without accreditation.

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02



### 3. Equipment Under Test (EUT) Information

#### 3.1 General Information

Product Feature & Specification	
Equipment Name	Notebook Computer
Brand Name	Lenovo
Model Name	TP00159D, TP00159E
Integrated WWAN Module	Brand Name: Quectel Model Name: EM160R-GL
Integrated WLAN Module 1	Brand Name: Intel Model Name: AX211D2W
Integrated WLAN Module 2	Brand Name: Intel Model Name: BE201D2W
Integrated NFC Module	Brand Name: Foxconn Model Name: T77H747
FCC ID	2AJN7-TP00159ALQ
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA LTE: QPSK, 16QAM, 64QAM
EUT Stage	Production Unit

**Remark:**

- WWAN based on original report, FCC ID: 2AJN7-TP00159ALQ, Sporton SAR Report, report number: FA3N1049 and FA3N1049-15 to do Sim-Tx analysis with Intel AX211D2W WLAN/BT module (FCC ID: PD9AX211D2) and Intel BE201D2W WLAN/BT module (FCC ID: PD9BE201D2), the Sim-Tx compliance with WWAN operation is addressed in section 5.
- This device has NFC operations, the NFC antenna is integrated into the device for this model, therefore, all SAR test were performed with the device which already incorporates the NFC antenna. A diagram showing the location of the antenna can be found in the operational description.
- According to FCC KDB publication 447498 D01v06, transmitters are considered to be operating simultaneously when there is overlapping transmission, with the exception of transmission during network hand-offs with maximum hand-off duration less than 30 seconds.

Sample List	Antenna Vendor	Platform
Sample 1	AWAN	AL
Sample 2	Amphenol Taiwan Corporation	AL
Sample 3	AWAN	PPS
Sample 4	Amphenol Taiwan Corporation	PPS

WWAN Antenna Information				
Main Antenna	Manufacturer	Amphenol Taiwan Corporation	Peak gain(dBi)	0.98
	Part number	DC330022K70 DC330022K00	Type	PIFA
	Manufacturer	AWAN	Peak gain(dBi)	0.98
	Part number	DC330022H70 DC330022H00	Type	PIFA

**3.2 General LTE SAR Test and Reporting Considerations**

Summarized necessary items addressed in KDB 941225 D05 v02r05						
FCC ID	2AJN7-TP00159ALQ					
Equipment Name	Notebook Computer					
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz					
Channel Bandwidth	LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 14: 5MHz, 10MHz LTE Band 25: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 30: 5MHz, 10MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz					
uplink modulations used	QPSK / 16QAM / 64QAM					
LTE Voice / Data requirements	Data only					
LTE MPR permanently built-in by design	<b>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</b>					
	Modulation	Channel bandwidth / Transmission bandwidth (NRB)				
		1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz
	QPSK	> 5	> 4	> 8	> 12	> 16
	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16
	16 QAM	> 5	> 4	> 8	> 12	> 16
	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)					
	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.					
Power reduction applied to satisfy SAR compliance	Yes, Proximity and G-Sensor and power verification refer to the original report.					
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to the original report, report number: FA3N1049.					
LTE Carrier Aggregation Additional Information	This device supports maximum of 5 carriers in the downlink and 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICL, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.					

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Transmission (H, M, L) channel numbers and frequencies in each LTE band																
LTE Band 2																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860				
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880				
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900				
LTE Band 4																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720				
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5				
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745				
LTE Band 5																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20407	824.7	20415	825.5	20425	826.5	20450	829								
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5								
H	20643	848.3	20635	847.5	20625	846.5	20600	844								
LTE Band 7																
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz									
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510								
M	21100	2535	21100	2535	21100	2535	21100	2535								
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560								
LTE Band 12																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz									
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	23017	699.7	23025	700.5	23035	701.5	23060	704								
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5								
H	23173	715.3	23165	714.5	23155	713.5	23130	711								
LTE Band 13																
	Bandwidth 5 MHz				Bandwidth 10 MHz											
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)									
L	23205		779.5		23230		782									
M	23230		782													
H	23255		784.5													
LTE Band 14																
	Bandwidth 5 MHz				Bandwidth 10 MHz											
	Channel #		Channel #		Channel #		Freq.(MHz)									
L	23305		790.5		23330		793									
M	23330		793													
H	23355		795.5													
LTE Band 25																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860				
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880				
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905				
LTE Band 26																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5						
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5						

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H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5						
LTE Band 30																
	Bandwidth 5 MHz				Bandwidth 10 MHz											
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)									
L	27685		2307.5		27710		2310									
M	27710		2310													
H	27735		2312.5													
LTE Band 38																
	Bandwidth 5 MHz			Bandwidth 10 MHz			Bandwidth 15 MHz		Bandwidth 20 MHz							
	Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #						
L	37775	2572.5		37800	2575		37825	2577.5		37850						
M	38000	2595		38000	2595		38000	2595		38000						
H	38225	2617.5		38200	2615		38175	2612.5		38150						
LTE Band 41																
	Bandwidth 5 MHz			Bandwidth 10 MHz			Bandwidth 15 MHz		Bandwidth 20 MHz							
	Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #						
L	39675	2498.5		39700	2501		39725	2503.5		39750						
L	40148	2545.8		40160	2547		40173	2548.3		40185						
M	40620	2593		40620	2593		40620	2593		40620						
H	41093	2640.3		41080	2639		41068	2637.8		41055						
M	41565	2687.5		41540	2685		41515	2682.5		41490						
H																
LTE Band 48																
	Bandwidth 5 MHz			Bandwidth 10 MHz			Bandwidth 15 MHz		Bandwidth 20 MHz							
	Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #						
L	55265	3552.5		55290	3555		55315	3557.5		55340						
L	55810	3607		55815	3607.5		55820	3608		55830						
M	56170	3643		56165	3642.5		56160	3642		56150						
H	56715	3697.5		56690	3695		56665	3692.5		56640						
LTE Band 66																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz							
	Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #						
L	131979	1710.7		131987	1711.5		131997	1712.5		132022						
M	132322	1745		132322	1745		132322	1745		132322						
H	132665	1779.3		132657	1778.5		132647	1777.5		132622						
Bandwidth 20 MHz																
		Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)							



## 4. RF Exposure Limits

### 4.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

### 4.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

#### Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

#### Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.



### 4.3 RF Exposure limit for above 6GHz

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Peak Spatially Averaged Power Density was evaluated over a circular area of 4cm<sup>2</sup> per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30



## 5. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body
1.	Maximum WWAN + WLAN Main + WLAN/BT Aux	Yes

**General Note:**

1. The WWAN SAR data refers to FCC ID: 2AJN7-TP00159ALQ, Sporton SAR Report, report number: FA3N1049 and FA3N1049-15.
2. The Intel AX211D2W WLAN/BT module (FCC ID: PD9AX211D2) is integrated into this host.
3. The Intel BE201D2W WLAN/BT module (FCC ID: PD9BE201D2) is also integrated into this host.
4. WiFi/BT SAR of 1.59 W/kg for each transmit antenna was used conservatively for the purpose of simultaneous transmission analysis.
5. The Scaled SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
  - i) Scalar SAR summation < 1.6W/kg.
  - ii) SPLSR =  $(\text{SAR1} + \text{SAR2})^{1.5} / (\text{min. separation distance, mm})$ , and the peak separation distance is determined from the square root of  $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ , where  $(x1, y1, z1)$  and  $(x2, y2, z2)$  are the coordinates of the extrapolated peak SAR locations in the zoom scan.
  - iii) If SPLSR  $\leq 0.04$ , simultaneously transmission SAR measurement is not necessary.
  - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
  - v) The SPLSR calculated results please refer to section 5.2.

### 5.1 Body Exposure Conditions

**<AL Platform>**

Exposure Position	1	2	3	1+2+3 Summed 1g SAR (W/kg)	SPLSR	Case No.
	Maximum WWAN	WLAN Main	WLAN/BT Aux			
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
Bottom Side at 0mm	1.191	1.590	1.590	4.371	0.020	Case 1

**<PPS Platform>**

Exposure Position	1	2	3	1+2+3 Summed 1g SAR (W/kg)	SPLSR	Case No.
	Maximum WWAN	WLAN Main	WLAN/BT Aux			
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
Bottom Side at 0mm	1.191	1.590	1.590	4.371	0.020	Case 2



## 5.2 SPLSR Evaluation and Analysis

### General Note:

1. According to antenna location of appendix A, the minimum distance between each WWAN/WLAN/BT transmit antenna is using for SPLSR analysis.
2. SPLSR =  $(\text{SAR}_1 + \text{SAR}_2)^{1.5} / (\text{min. separation distance, mm})$ . If SPLSR  $\leq 0.04$ , simultaneously transmission SAR measurement is not necessary.

### <AL Platform>

Case 1	Band	Position	SAR (W/kg)	Gap (mm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	Maximum WWAN	Bottom Side	1.191	0mm	275.0	2.78	0.02	Not required
	WLAN Main		1.59	0mm				
Case 1	Maximum WWAN	Bottom Side	1.191	0mm	220.0	2.78	0.02	Not required
	WLAN/BT Aux		1.59	0mm				

### <PPS Platform>

Case 2	Band	Position	SAR (W/kg)	Gap (mm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	Maximum WWAN	Bottom Side	1.191	0mm	370.0	2.78	0.01	Not required
	WLAN Main		1.59	0mm				
Case 2	Maximum WWAN	Bottom Side	1.191	0mm	300.0	2.78	0.02	Not required
	WLAN/BT Aux		1.59	0mm				



## **6. References**

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [6] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [7] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [8] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [9] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [10] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [11] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.