

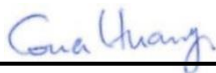
# RF Exposure Evaluation

## (Mobile Condition)

FCC ID : A4RGHL1X  
Equipment : Phone  
Applicant : Google LLC  
1600 Amphitheatre Parkway,  
Mountain View, California, 94043 USA  
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated in accordance with 47 CFR Part 2.1091 for the device and pass the limit.

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



Approved by: Cona Huang / Deputy Manager



**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**  
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**1. Description of Equipment Under Test (EUT)**

Product Feature & Specification	
Equipment Name	Phone
FCC ID	A4RGHL1X
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz 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 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz WLAN 2.4GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2G Band: 5150 MHz ~ 5250 MHz WLAN 5.3G Band: 5250 MHz ~ 5350 MHz WLAN 5.5G Band: 5470 MHz ~ 5725 MHz WLAN 5.8G Band: 5725 MHz ~ 5850 MHz WLAN 5.9G UNII4 Band: 5850 MHz ~ 5895 MHz WLAN 6E: 5925 MHz ~ 6425 MHz, 6425 MHz ~ 6525 MHz, 6525 MHz ~ 6875 MHz, 6875 MHz ~ 7125 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/HE20/HE40/HE80 Bluetooth BR/EDR/LE NFC: ASK

Reviewed by: Jason Wang

Report Producer: Carlie Tsai



**2. Maximum Tune-up Limit (unit: dBm)**

**General Note:**

1. The maximum power of the WWAN antenna will be selected to evaluate the power density
2. For MPE calculation is using the highest output among 2Tx switching antennas for each frequency band.

**<WWAN Maximum Power>**

Maximum Transmit Burst Average Power (dBm)			
Band	Antenna	Duty cycle	Mobile Condition
			Index 1
GSM850 GSM/GPRS 1TX	0	12.50%	33.50
GSM850 GPRS 2TX	0	25.00%	32.50
GSM850 GPRS 3TX	0	37.50%	31.50
GSM850 GPRS 4TX	0	50.00%	30.50
GSM850 EDGE 1TX	0	12.50%	28.00
GSM850 EDGE 2TX	0	25.00%	27.50
GSM850 EDGE 3TX	0	37.50%	27.50
GSM850 EDGE 4TX	0	50.00%	25.50
GSM1900 GSM/GPRS 1TX	2	12.50%	30.50
GSM1900 GPRS 2TX	2	25.00%	29.50
GSM1900 GPRS 3TX	2	37.50%	29.00
GSM1900 GPRS 4TX	2	50.00%	28.00
GSM1900 EDGE 1TX	2	12.50%	26.00
GSM1900 EDGE 2TX	2	25.00%	25.00
GSM1900 EDGE 3TX	2	37.50%	25.00
GSM1900 EDGE 4TX	2	50.00%	24.00
WCDMA B2	2	100.00%	25.70
WCDMA B4	2	100.00%	25.70
WCDMA B5	0	100.00%	25.00
LTE B5	0	100.00%	25.70
LTE B7	2	100.00%	25.70
LTE B12/B17	0	100.00%	25.70
LTE B25/B2	2	100.00%	25.70
LTE B41/B38 PC3	2	63.30%	25.70
LTE B41/B38 PC2	2	43.30%	27.50
LTE B66/B4	2	100.00%	25.70
FR1 n5	0	100.00%	25.70
FR1 n7	2	100.00%	25.70
FR1 n12	0	100.00%	25.70
FR1 n25/n2	2	100.00%	25.70
FR1 n41/38 PC3	2	100.00%	25.50
FR1 n41 PC2	2	50.00%	27.50
FR1 n66	2	100.00%	25.70
FR1 n77 PC3	6	100.00%	25.70
FR1 n77 PC2	6	50.00%	27.20
FR1 n77 SRS	1	100.00%	25.80



Maximum Transmit Burst Average Power (dBm)			
Band	Antenna	Duty cycle	Mobile Condition
			Index 1
GSM850 GSM/GPRS 1TX	1	12.50%	33.00
GSM850 GPRS 2TX	1	25.00%	32.50
GSM850 GPRS 3TX	1	37.50%	30.50
GSM850 GPRS 4TX	1	50.00%	29.00
GSM850 EDGE 1TX	1	12.50%	27.50
GSM850 EDGE 2TX	1	25.00%	27.00
GSM850 EDGE 3TX	1	37.50%	27.00
GSM850 EDGE 4TX	1	50.00%	24.00
GSM1900 GSM/GPRS 1TX	0	12.50%	30.00
GSM1900 GPRS 2TX	0	25.00%	29.50
GSM1900 GPRS 3TX	0	37.50%	28.50
GSM1900 GPRS 4TX	0	50.00%	27.70
GSM1900 EDGE 1TX	0	12.50%	26.00
GSM1900 EDGE 2TX	0	25.00%	24.80
GSM1900 EDGE 3TX	0	37.50%	24.80
GSM1900 EDGE 4TX	0	50.00%	23.80
WCDMA B2	0	100.00%	25.20
WCDMA B4	0	100.00%	25.20
WCDMA B5	1	100.00%	24.50
LTE B5	1	100.00%	25.20
LTE B7	0	100.00%	25.20
LTE B12/B17	1	100.00%	25.20
LTE B25/B2	0	100.00%	25.20
LTE B41/B38 PC3	0	63.30%	25.20
LTE B41/B38 PC2	0	43.30%	27.00
LTE B66/B4	0	100.00%	25.20
FR1 n5	1	100.00%	25.20
FR1 n7	0	100.00%	25.20
FR1 n12	1	100.00%	25.20
FR1 n25/n2	0	100.00%	25.20
FR1 n41/38 PC3	0	100.00%	25.00
FR1 n41 PC2	0	50.00%	27.00
FR1 n66	0	100.00%	25.20
FR1 n77 PC3	2	100.00%	24.70
FR1 n77 PC2	2	50.00%	26.20
FR1 n77 SRS	5	100.00%	26.00



<WLAN Maximum Power Table>

<2.4GHz WLAN>

Burst Average Power (dBm)						
2.4GHz WLAN	Transmit Antenna			MIMO		
	Mode	Channel	Frequency (MHz)	Ant 4+3(4) Tune-Up Limit	Ant 4+3(3) Tune-Up Limit	Ant 4+3 Tune-Up Limit
	802.11b 1Mbps	1	2412	20.00	20.00	23.00
		6	2437	20.00	20.00	23.00
		11	2462	20.00	20.00	23.00
		12	2467	16.50	16.50	19.50
		13	2472	12.50	12.50	15.50
	802.11g 6Mbps	1	2412	18.50	18.50	21.50
		6	2437	20.00	20.00	23.00
		11	2462	16.50	16.50	19.50
		12	2467	13.00	13.00	16.00
		13	2472	1.50	1.50	4.50
	802.11n-HT20 MCS0	1	2412	16.00	16.00	19.00
		6	2437	19.00	19.00	22.00
		11	2462	14.00	14.00	17.00
		12	2467	13.00	13.00	16.00
		13	2472	1.50	1.50	4.50
	802.11ac-VHT20 MCS0	1	2412	16.00	16.00	19.00
		6	2437	19.00	19.00	22.00
		11	2462	14.00	14.00	17.00
		12	2467	13.00	13.00	16.00
		13	2472	1.50	1.50	4.50
802.11ax-HE20 MCS0	1	2412	16.00	16.00	19.00	
	6	2437	19.00	19.00	22.00	
	11	2462	14.00	14.00	17.00	
	12	2467	13.00	13.00	16.00	
	13	2472	1.50	1.50	4.50	



<5GHz WLAN>

Burst Average Power (dBm)						
5.2GHz WLAN	Transmit Antenna			MIMO		
	Mode	Channel	Frequency (MHz)	Ant 4+3(4) Tune-Up Limit	Ant 4+3(3) Tune-Up Limit	Ant 4+3 Tune-Up Limit
	802.11a 6Mbps	36	5180	19.00	19.00	22.00
		40	5200	19.00	19.00	22.00
		44	5220	19.00	19.00	22.00
		48	5240	19.00	19.00	22.00
	802.11n-HT20 MCS0	36	5180	19.00	19.00	22.00
		40	5200	19.00	19.00	22.00
		44	5220	19.00	19.00	22.00
		48	5240	19.00	19.00	22.00
	802.11n-HT40 MCS0	38	5190	17.00	17.00	20.00
		46	5230	18.00	18.00	21.00
	802.11ac-VHT20 MCS0	36	5180	19.00	19.00	22.00
		40	5200	19.00	19.00	22.00
		44	5220	19.00	19.00	22.00
		48	5240	19.00	19.00	22.00
	802.11ac-VHT40 MCS0	38	5190	17.00	17.00	20.00
		46	5230	18.00	18.00	21.00
	802.11ac-VHT80 MCS0	42	5210	17.00	17.00	20.00
	802.11ax-HE20 MCS0	36	5180	19.00	19.00	22.00
		40	5200	19.00	19.00	22.00
		44	5220	19.00	19.00	22.00
48		5240	19.00	19.00	22.00	
802.11ax-HE40 MCS0	38	5190	17.00	17.00	20.00	
	46	5230	18.00	18.00	21.00	
802.11ax-HE80 MCS0	42	5210	17.00	17.00	20.00	





Burst Average Power (dBm)						
	Transmit Antenna			MIMO		
	Mode	Channel	Frequency (MHz)	Ant 4+3(4) Tune-Up Limit	Ant 4+3(3) Tune-Up Limit	Ant 4+3 Tune-Up Limit
5.3GHz WLAN	802.11a 6Mbps	52	5260	19.00	19.00	22.00
		56	5280	19.00	19.00	22.00
		60	5300	19.00	19.00	22.00
		64	5320	19.00	19.00	22.00
	802.11n-HT20 MCS0	52	5260	19.00	19.00	22.00
		56	5280	19.00	19.00	22.00
		60	5300	19.00	19.00	22.00
		64	5320	19.00	19.00	22.00
	802.11n-HT40 MCS0	54	5270	18.00	18.00	21.00
		62	5310	18.00	18.00	21.00
	802.11ac-VHT20 MCS0	52	5260	19.00	19.00	22.00
		56	5280	19.00	19.00	22.00
		60	5300	19.00	19.00	22.00
		64	5320	19.00	19.00	22.00
	802.11ac-VHT40 MCS0	54	5270	18.00	18.00	21.00
		62	5310	18.00	18.00	21.00
	802.11ac-VHT80 MCS0	58	5290	16.00	16.00	19.00
	802.11ax-HE20 MCS0	52	5260	19.00	19.00	22.00
		56	5280	19.00	19.00	22.00
		60	5300	19.00	19.00	22.00
64		5320	19.00	19.00	22.00	
802.11ax-HE40 MCS0	54	5270	18.00	18.00	21.00	
	62	5310	18.00	18.00	21.00	
802.11ax-HE80 MCS0	58	5290	16.00	16.00	19.00	



Burst Average Power (dBm)						
5.5GHz WLAN	Transmit Antenna			MIMO		
	Mode	Channel	Frequency (MHz)	Ant 4+3(4) Tune-Up Limit	Ant 4+3(3) Tune-Up Limit	Ant 4+3 Tune-Up Limit
802.11a 6Mbps		100	5500	19.00	19.00	22.00
		116	5580	19.00	19.00	22.00
		124	5620	19.00	19.00	22.00
		132	5660	19.00	19.00	22.00
		144	5720	19.00	19.00	22.00
802.11n-HT20 MCS0		100	5500	19.00	19.00	22.00
		116	5580	19.00	19.00	22.00
		124	5620	19.00	19.00	22.00
		132	5660	19.00	19.00	22.00
		144	5720	19.00	19.00	22.00
802.11n-HT40 MCS0		102	5510	18.00	18.00	21.00
		110	5550	18.00	18.00	21.00
		126	5630	18.00	18.00	21.00
		134	5670	18.00	18.00	21.00
		142	5710	18.00	18.00	21.00
802.11ac-VHT20 MCS0		100	5500	19.00	19.00	22.00
		116	5580	19.00	19.00	22.00
		124	5620	19.00	19.00	22.00
		132	5660	19.00	19.00	22.00
		144	5720	19.00	19.00	22.00
802.11ac-VHT40 MCS0		102	5510	18.00	18.00	21.00
		110	5550	18.00	18.00	21.00
		126	5630	18.00	18.00	21.00
		134	5670	18.00	18.00	21.00
		142	5710	18.00	18.00	21.00
802.11ac-VHT80 MCS0		106	5530	12.00	12.00	15.00
		122	5610	17.00	17.00	20.00
		138	5690	17.00	17.00	20.00
802.11ax-HE20 MCS0		100	5500	19.00	19.00	22.00
		116	5580	19.00	19.00	22.00
		124	5620	19.00	19.00	22.00
		132	5660	19.00	19.00	22.00
		144	5720	19.00	19.00	22.00
802.11ax-HE40 MCS0		102	5510	18.00	18.00	21.00
		110	5550	18.00	18.00	21.00
		126	5630	18.00	18.00	21.00
		134	5670	18.00	18.00	21.00
		142	5710	18.00	18.00	21.00
802.11ax-HE80 MCS0		106	5530	12.00	12.00	15.00
		122	5610	17.00	17.00	20.00
		138	5690	17.00	17.00	20.00



Burst Average Power (dBm)						
5.8GHz WLAN	Transmit Antenna			MIMO		
	Mode	Channel	Frequency (MHz)	Ant 4+3(4) Tune-Up Limit	Ant 4+3(3) Tune-Up Limit	Ant 4+3 Tune-Up Limit
802.11a 6Mbps		149	5745	19.00	19.00	22.00
		157	5785	19.00	19.00	22.00
		165	5825	19.00	19.00	22.00
802.11n-HT20 MCS0		149	5745	19.00	19.00	22.00
		157	5785	19.00	19.00	22.00
		165	5825	19.00	19.00	22.00
802.11n-HT40 MCS0		151	5755	18.00	18.00	21.00
		159	5795	18.00	18.00	21.00
802.11ac-VHT20 MCS0		149	5745	19.00	19.00	22.00
		157	5785	19.00	19.00	22.00
		165	5825	19.00	19.00	22.00
802.11ac-VHT40 MCS0		151	5755	18.00	18.00	21.00
		159	5795	18.00	18.00	21.00
802.11ac-VHT80 MCS0		155	5775	17.00	17.00	20.00
802.11ax-HE20 MCS0		149	5745	19.00	19.00	22.00
		157	5785	19.00	19.00	22.00
		165	5825	19.00	19.00	22.00
802.11ax-HE40 MCS0		151	5755	18.00	18.00	21.00
		159	5795	18.00	18.00	21.00
802.11ax-HE80 MCS0		155	5775	17.00	17.00	20.00

Burst Average Power (dBm)						
5.9GHz WLAN UNII4	Transmit Antenna			MIMO		
	Mode	Channel	Frequency (MHz)	Ant 4+3(4) Tune-Up Limit	Ant 4+3(3) Tune-Up Limit	Ant 4+3 Tune-Up Limit
802.11a 6Mbps		169	5845	19.00	19.00	22.00
		173	5865	19.00	19.00	22.00
		177	5885	17.00	17.00	20.00
802.11n-HT20 MCS0		169	5845	19.00	19.00	22.00
		173	5865	19.00	19.00	22.00
		177	5885	17.00	17.00	20.00
802.11n-HT40 MCS0		167	5835	18.00	18.00	21.00
		175	5875	16.00	16.00	19.00
802.11ac-VHT20 MCS0		169	5845	19.00	19.00	22.00
		173	5865	19.00	19.00	22.00
		177	5885	17.00	17.00	20.00
802.11ac-VHT40 MCS0		167	5835	18.00	18.00	21.00
		175	5875	16.00	16.00	19.00
802.11ac-VHT80 MCS0		171	5855	16.00	16.00	19.00
802.11ax-HE20 MCS0		169	5845	19.00	19.00	22.00
		173	5865	19.00	19.00	22.00
		177	5885	17.00	17.00	20.00
802.11ax-HE40 MCS0		167	5835	18.00	18.00	21.00
		175	5875	16.00	16.00	19.00
802.11ax-HE80 MCS0		171	5855	16.00	16.00	19.00



<6GHz WLAN>

Burst Average Power (dBm)						
Transmit Antenna				MIMO		
WiFi 6E	Mode	Channel	Frequency (MHz)	Ant 4+3(4) Tune-Up Limit	Ant 4+3(3) Tune-Up Limit	Ant 4+3 Tune-Up Limit
	WiFi 6E	802.11a 6Mbps	1	5955	4.00	4.00
57			6235	4.00	4.00	7.00
113			6515	4.00	4.00	7.00
173			6815	4.00	4.00	7.00
802.11ax-HE20 MCS0		1	5955	4.00	4.00	7.00
		57	6235	4.00	4.00	7.00
		113	6515	4.00	4.00	7.00
		173	6815	4.00	4.00	7.00
802.11ax-HE40 MCS0		3	5965	7.00	7.00	10.00
		59	6245	7.00	7.00	10.00
		107	6485	7.00	7.00	10.00
		171	6805	7.00	7.00	10.00
	227	7085	9.00	9.00	12.00	
802.11ax-HE80 MCS0	7	5985	9.00	9.00	12.00	
	71	6305	9.00	9.00	12.00	
	119	6545	9.00	9.00	12.00	
	167	6785	9.00	9.00	12.00	
		215	7025	9.00	9.00	12.00

<Bluetooth Maximum Power>

Mode	Burst Average Power (dBm)				
	Ant 4			Ant 4	
	BR / EDR			LE	
	1Mbps	2Mbps	3Mbps	1Mbps	2Mbps
Tune-up Limit	20	18.5	18.5	20	20

Mode	Burst Average Power (dBm)				
	Ant 3			Ant 3	
	BR / EDR			LE	
	1Mbps	2Mbps	3Mbps	1Mbps	2Mbps
Tune-up Limit	20	18.5	18.5	20	20



### 3. RF Exposure Limit Introduction

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.

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

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



## 4. Radio Frequency Radiation Exposure Evaluation

### 4.1. Power Density Calculation

#### TX0

Band	Antenna	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Power Density / Limit
GSM850 GSM/GPRS 1TX	0	-5.30	33.50	28.2	0.66	83.18	0.017	0.549	0.030
GSM850 GPRS 2TX	0	-5.30	32.50	27.2	0.52	131.20	0.026	0.549	0.048
GSM850 GPRS 3TX	0	-5.30	31.50	26.2	0.42	156.31	0.031	0.549	0.057
GSM850 GPRS 4TX	0	-5.30	30.50	25.2	0.33	165.96	0.033	0.549	0.060
GSM850 EDGE 1TX	0	-5.30	28.00	22.7	0.19	23.44	0.005	0.549	0.008
GSM850 EDGE 2TX	0	-5.30	27.50	22.2	0.17	41.49	0.008	0.549	0.015
GSM850 EDGE 3TX	0	-5.30	27.50	22.2	0.17	62.23	0.012	0.549	0.023
GSM850 EDGE 4TX	0	-5.30	25.50	20.2	0.10	52.36	0.010	0.549	0.019
GSM1900 GSM/GPRS 1TX	2	-3.80	30.50	26.7	0.47	58.88	0.012	1.000	0.012
GSM1900 GPRS 2TX	2	-3.80	29.50	25.7	0.37	92.88	0.018	1.000	0.018
GSM1900 GPRS 3TX	2	-3.80	29.00	25.2	0.33	124.17	0.025	1.000	0.025
GSM1900 GPRS 4TX	2	-3.80	28.00	24.2	0.26	131.83	0.026	1.000	0.026
GSM1900 EDGE 1TX	2	-3.80	26.00	22.2	0.17	20.89	0.004	1.000	0.004
GSM1900 EDGE 2TX	2	-3.80	25.00	21.2	0.13	32.96	0.007	1.000	0.007
GSM1900 EDGE 3TX	2	-3.80	25.00	21.2	0.13	49.43	0.010	1.000	0.010
GSM1900 EDGE 4TX	2	-3.80	24.00	20.2	0.10	52.36	0.010	1.000	0.010
WCDMA B2	2	-3.80	25.70	21.9	0.15	154.88	0.031	1.000	0.031
WCDMA B4	2	-4.10	25.70	21.6	0.14	144.54	0.029	1.000	0.029
WCDMA B5	0	-5.30	25.00	19.7	0.09	93.33	0.019	0.549	0.034
LTE B5	0	-5.30	25.70	20.4	0.11	109.65	0.022	0.549	0.040
LTE B7	2	-0.90	25.70	24.8	0.30	302.00	0.060	1.000	0.060
LTE B12/B17	0	-6.00	25.70	19.7	0.09	93.33	0.019	0.466	0.040
LTE B25/B2	2	-3.80	25.70	21.9	0.15	154.88	0.031	1.000	0.031
LTE B38 PC3	2	-0.70	25.70	25.0	0.32	316.23	0.063	1.000	0.063
LTE B38 PC2	2	-0.70	27.50	26.8	0.48	478.63	0.095	1.000	0.095
LTE B41 PC3	2	-0.70	25.70	25.0	0.32	316.23	0.063	1.000	0.063
LTE B41 PC2	2	-0.70	27.50	26.8	0.48	478.63	0.095	1.000	0.095
LTE B66/B4	2	-4.10	25.70	21.6	0.14	144.54	0.029	1.000	0.029
FR1 n5	0	-5.30	25.70	20.4	0.11	109.65	0.022	0.549	0.040
FR1 n7	2	-0.90	25.70	24.8	0.30	302.00	0.060	1.000	0.060
FR1 n12	0	-6.00	25.70	19.7	0.09	93.33	0.019	0.466	0.040
FR1 n25/n2	2	-3.80	25.70	21.9	0.15	154.88	0.031	1.000	0.031
FR1 n38 PC3	2	-0.70	25.50	24.8	0.30	302.00	0.060	1.000	0.060
FR1 n41 PC3	2	-0.70	25.50	24.8	0.30	302.00	0.060	1.000	0.060
FR1 n41 PC2	2	-0.70	27.50	26.8	0.48	478.63	0.095	1.000	0.095
FR1 n66	2	-4.10	25.70	21.6	0.14	144.54	0.029	1.000	0.029
FR1 n77 PC3	6	-1.20	25.70	24.5	0.28	281.84	0.056	1.000	0.056
FR1 n77 PC2	6	-1.20	27.20	26.0	0.40	398.11	0.079	1.000	0.079
FR1 n77 PC2 Sub	1	-1.20	25.80	24.6	0.29	288.40	0.057	1.000	0.057



**TX1**

Band	Antenna	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Power Density / Limit
GSM850 GSM/GPRS 1TX	1	-7.50	33.00	25.5	0.35	44.67	0.009	0.549	0.016
GSM850 GPRS 2TX	1	-7.50	32.50	25.0	0.32	79.06	0.016	0.549	0.029
GSM850 GPRS 3TX	1	-7.50	30.50	23.0	0.20	74.82	0.015	0.549	0.027
GSM850 GPRS 4TX	1	-7.50	29.00	21.5	0.14	70.79	0.014	0.549	0.026
GSM850 EDGE 1TX	1	-7.50	27.50	20.0	0.10	12.59	0.003	0.549	0.005
GSM850 EDGE 2TX	1	-7.50	27.00	19.5	0.09	22.28	0.004	0.549	0.008
GSM850 EDGE 3TX	1	-7.50	27.00	19.5	0.09	33.42	0.007	0.549	0.012
GSM850 EDGE 4TX	1	-7.50	24.00	16.5	0.04	22.33	0.004	0.549	0.008
GSM1900 GSM/GPRS 1TX	0	-2.70	30.00	27.3	0.54	67.61	0.013	1.000	0.013
GSM1900 GPRS 2TX	0	-2.70	29.50	26.8	0.48	119.66	0.024	1.000	0.024
GSM1900 GPRS 3TX	0	-2.70	28.50	25.8	0.38	142.56	0.028	1.000	0.028
GSM1900 GPRS 4TX	0	-2.70	27.70	25.0	0.32	158.49	0.032	1.000	0.032
GSM1900 EDGE 1TX	0	-2.70	26.00	23.3	0.21	26.92	0.005	1.000	0.005
GSM1900 EDGE 2TX	0	-2.70	24.80	22.1	0.16	40.55	0.008	1.000	0.008
GSM1900 EDGE 3TX	0	-2.70	24.80	22.1	0.16	60.82	0.012	1.000	0.012
GSM1900 EDGE 4TX	0	-2.70	23.80	21.1	0.13	64.41	0.013	1.000	0.013
WCDMA B2	0	-2.70	25.20	22.5	0.18	177.83	0.035	1.000	0.035
WCDMA B4	0	-3.30	25.20	21.9	0.15	154.88	0.031	1.000	0.031
WCDMA B5	1	-7.50	24.50	17.0	0.05	50.12	0.010	0.549	0.018
LTE B5	1	-7.50	25.20	17.7	0.06	58.88	0.012	0.549	0.021
LTE B7	0	-1.70	25.20	23.5	0.22	223.87	0.045	1.000	0.045
LTE B12/B17	1	-10.10	25.20	15.1	0.03	32.36	0.006	0.466	0.014
LTE B25/B2	0	-2.70	25.20	22.5	0.18	177.83	0.035	1.000	0.035
LTE B38 PC3	0	-2.40	25.20	22.8	0.19	190.55	0.038	1.000	0.038
LTE B38 PC2	0	-2.40	27.00	24.6	0.29	288.40	0.057	1.000	0.057
LTE B41 PC3	0	-1.70	25.20	23.5	0.22	223.87	0.045	1.000	0.045
LTE B41 PC2	0	-1.70	27.00	25.3	0.34	338.84	0.067	1.000	0.067
LTE B66/B4	0	-3.30	25.20	21.9	0.15	154.88	0.031	1.000	0.031
FR1 n5	1	-7.50	25.20	17.7	0.06	58.88	0.012	0.549	0.021
FR1 n7	0	-1.70	25.20	23.5	0.22	223.87	0.045	1.000	0.045
FR1 n12	1	-10.10	25.20	15.1	0.03	32.36	0.006	0.466	0.014
FR1 n25/n2	0	-2.70	25.20	22.5	0.18	177.83	0.035	1.000	0.035
FR1 n38 PC3	0	-2.40	25.00	22.6	0.18	181.97	0.036	1.000	0.036
FR1 n41 PC3	0	-1.70	25.00	23.3	0.21	213.80	0.043	1.000	0.043
FR1 n41 PC2	0	-1.70	27.00	25.3	0.34	338.84	0.067	1.000	0.067
FR1 n66	0	-3.30	25.20	21.9	0.15	154.88	0.031	1.000	0.031
FR1 n77 PC3	2	-1.80	24.70	22.9	0.19	194.98	0.039	1.000	0.039
FR1 n77 PC2	2	-1.80	26.20	24.4	0.28	275.42	0.055	1.000	0.055
FR1 n77 PC2 Sub	5	-3.40	26.00	22.6	0.18	181.97	0.036	1.000	0.036

**WLAN / BT**

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Power Density / Limit
WLAN2.4GHz Band	0.8	23.0	23.8	0.24	239.88	0.048	1.000	0.048
WLAN5GHz/6GHz Band	2.5	22.0	24.5	0.28	281.84	0.056	1.000	0.056
Bluetooth	0.8	20.0	20.8	0.12	120.23	0.024	1.000	0.024

WWAN Power Density / Limit	WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit)
0.095	0.056	0.024	0.175

**Note:**

1. Above power density calculation selected highest output power and antenna from all transmit antenna to be evaluation.
2. In simultaneous transmission for this device, 5G NR and LTE transmission are managed and controlled by Samsung S.LSI TAS, while the RF exposure from WLAN and BT radios are managed using legacy approach, therefore simultaneous transmission compliance can be assessed on LTE+WLAN+BT or NR+WLAN+BT, above power density calculation selected highest power density between LTE and 5G NR for simultaneous transmission analysis with other transmitters.
3. For collocation analysis, the highest (power density/limit) among all WWAN wireless modes is chosen for summation.
4. Σ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission) / (corresponding MPE limit)], for all transmission configuration was consider and list above table.
5. Considering the all the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of collocated transmitters is compliant.

**Conclusion:**

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.