

Maximum Power RF Exposure Evaluation

FCC ID : A4RG1MNW
Equipment : Phone
Model Name : G1MNW
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
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan



Table of Contents

1. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)	4
2. MAXIMUM TUNE-UP LIMIT (UNIT: DBM).....	5
3. RF EXPOSURE LIMIT INTRODUCTION	9
4. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION	10
4.1. Power Density Calculation.....	10



1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
Equipment Name	Phone
Model Name	G1MNW
FCC ID	A4RG1MNW
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 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 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 LTE Band 71: 663 MHz ~ 698 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 n26 : 814 MHz ~ 849 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n70 : 1695 MHz ~ 1710 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz 5G NR n258 : 24.25 GHz~24.45 GHz, 24.75GHz ~25.25GHz 5G NR n260 : 37 GHz~40 GHz 5G NR n261 : 27.5 GHz~28.35 GHz 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 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 WPT: 110.1 KHz ~ 148.5 KHz UWB: 6489.6 MHz, 7987.2 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/be HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160/EHT20/EHT40/EHT80/EHT160 Bluetooth BR/EDR/LE/HR NFC: ASK WPT: ASK UWB: BPM-BPSK
Remark:	1. The MPE analysis performed in this report evaluates a unique mobile use case where the handset is placed on Google wireless charging dock. The cellular, WiFi, UWB and Bluetooth transmitters can be active while being charged. The BT, WIFI and WWAN sub-6 power levels used and reported in this analysis are specific for this use condition only.

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 is 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	Max Power Condition
			Index 1
GSM850 GPRS 1TX	0	12.50%	33.5
GSM850 GPRS 2TX	0	25.00%	32.5
GSM850 GPRS 3TX	0	37.50%	31.5
GSM850 GPRS 4TX	0	50.00%	30.5
GSM850 EDGE 1TX	0	12.50%	28.0
GSM850 EDGE 2TX	0	25.00%	27.5
GSM850 EDGE 3TX	0	37.50%	27.5
GSM850 EDGE 4TX	0	50.00%	25.5
GSM850 GPRS 1TX	1	12.50%	33.1
GSM850 GPRS 2TX	1	25.00%	32.1
GSM850 GPRS 3TX	1	37.50%	31.1
GSM850 GPRS 4TX	1	50.00%	30.1
GSM850 EDGE 1TX	1	12.50%	27.6
GSM850 EDGE 2TX	1	25.00%	27.1
GSM850 EDGE 3TX	1	37.50%	27.1
GSM850 EDGE 4TX	1	50.00%	25.1
GSM1900 GPRS 1TX	0	12.50%	30.2
GSM1900 GPRS 2TX	0	25.00%	28.7
GSM1900 GPRS 3TX	0	37.50%	28.2
GSM1900 GPRS 4TX	0	50.00%	27.2
GSM1900 EDGE 1TX	0	12.50%	25.2
GSM1900 EDGE 2TX	0	25.00%	24.2
GSM1900 EDGE 3TX	0	37.50%	24.2
GSM1900 EDGE 4TX	0	50.00%	23.2
GSM1900 GPRS 1TX	2	12.50%	31.0
GSM1900 GPRS 2TX	2	25.00%	29.5
GSM1900 GPRS 3TX	2	37.50%	29.0
GSM1900 GPRS 4TX	2	50.00%	28.0
GSM1900 EDGE 1TX	2	12.50%	26.0
GSM1900 EDGE 2TX	2	25.00%	25.0
GSM1900 EDGE 3TX	2	37.50%	25.0
GSM1900 EDGE 4TX	2	50.00%	24.0
WCDMA B2	0	100.00%	25.2
WCDMA B2	2	100.00%	25.4
WCDMA B4	0	100.00%	25.2
WCDMA B4	2	100.00%	25.4
WCDMA B5	0	100.00%	25.4
WCDMA B5	1	100.00%	25.5



Maximum Transmit Burst Average Power (dBm)			
Band	Antenna	Duty cycle	Max Power Condition
			Index 1
LTE B2	1	100.00%	25.4
LTE B2	5	100.00%	25.2
LTE B7	0	100.00%	25.0
LTE B7	2	100.00%	25.4
LTE B12/17	0	100.00%	25.4
LTE B12/17	1	100.00%	25.5
LTE B13	0	100.00%	25.4
LTE B13	1	100.00%	25.5
LTE B14	0	100.00%	25.4
LTE B14	1	100.00%	25.5
LTE B25/2	0	100.00%	25.2
LTE B25/2	2	100.00%	25.4
LTE B26/5	0	100.00%	25.4
LTE B26/5	1	100.00%	25.4
LTE B30	0	100.00%	23.4
LTE B30	2	100.00%	23.1
LTE B41/38 PC3	0	63.30%	23.5
LTE B41/38 PC3	2	63.30%	23.9
LTE B41/38 PC2	0	43.30%	26.5
LTE B41/38 PC2	2	43.30%	26.9
LTE B48 PC3	6	63.30%	22.4
LTE B48 PC3	7	63.30%	24.7
LTE B66/4	0	100.00%	25.2
LTE B66/4	1	100.00%	25.4
LTE B66/4	2	100.00%	25.4
LTE B66/4	5	100.00%	25.2
LTE B71	0	100.00%	25.4
LTE B71	1	100.00%	25.5



Maximum Transmit Burst Average Power (dBm)			
Band	Antenna	Duty cycle	Max Power Condition
			Index 1
FR1 n2	1	100.00%	25.4
FR1 n2	5	100.00%	25.2
FR1 n7	0	100.00%	24.3
FR1 n7	2	100.00%	25.4
FR1 n12	0	100.00%	25.4
FR1 n12	1	100.00%	25.2
FR1 n25/2	0	100.00%	25.2
FR1 n25/2	2	100.00%	25.4
FR1 n26/5	0	100.00%	25.4
FR1 n26/5	1	100.00%	25.4
FR1 n30	0	100.00%	23.4
FR1 n30	2	100.00%	23.1
FR1 n38 PC3	0	100.00%	25.0
FR1 n38 PC3	1	100.00%	25.4
FR1 n38 PC3	2	100.00%	25.4
FR1 n38 PC3	5	100.00%	25.0
FR1 n41 PC3	0	100.00%	23.5
FR1 n41 PC3	1	100.00%	23.9
FR1 n41 PC3	2	100.00%	23.9
FR1 n41 PC3	5	100.00%	23.5
FR1 n41 PC2	0	50.00%	26.5
FR1 n41 PC2	1	50.00%	26.9
FR1 n41 PC2	2	50.00%	26.9
FR1 n41 PC2	5	50.00%	26.2
FR1 n41 PC1.5	0	25.00%	25.0
FR1 n41 PC1.5	1	25.00%	25.4
FR1 n41 PC1.5	2	25.00%	25.4
FR1 n41 PC1.5	5	25.00%	25.0
FR1 n48	1	100.00%	22.4
FR1 n48	5	100.00%	24.3
FR1 n48	6	100.00%	22.4
FR1 n48	7	100.00%	24.3
FR1 n66	0	100.00%	25.2
FR1 n66	1	100.00%	25.4
FR1 n66	2	100.00%	25.4
FR1 n66	5	100.00%	25.2
FR1 n70	0	100.00%	25.2
FR1 n70	2	100.00%	25.4
FR1 n71	0	100.00%	25.4
FR1 n71	1	100.00%	25.2
FR1 n77 PC3	1	100.00%	24.1
FR1 n77 PC3	5	100.00%	23.6
FR1 n77 PC3	6	100.00%	24.6
FR1 n77 PC3	7	100.00%	24.0
FR1 n77 PC2	1	50.00%	27.1
FR1 n77 PC2	5	50.00%	26.6
FR1 n77 PC2	6	50.00%	27.6
FR1 n77 PC2	7	50.00%	26.4
FR1 n77 PC1.5	1	25.00%	25.6
FR1 n77 PC1.5	5	25.00%	25.1
FR1 n77 PC1.5	6	25.00%	26.1
FR1 n77 PC1.5	7	25.00%	24.9
FR1 n78 PC3	1	100.00%	24.1
FR1 n78 PC3	5	100.00%	24.3
FR1 n78 PC3	6	100.00%	24.1
FR1 n78 PC3	7	100.00%	24.0
FR1 n78 PC2	6	50.00%	27.1
FR1 n78 PC2	7	50.00%	26.0



Band	EIRP (dBm)
5G NR n258	32.38
5G NR n260	32.26
5G NR n261	34.18

<WLAN / Bluetooth Maximum Power Table>

Mode		Maximum Average power (dBm)
WLAN	2.4GHz	25.0
	5GHz/6GHz	23.0
Bluetooth		21.5

<UWB Maximum Power>

UWB	Maximum Average Power (dBm)		
	Ant 2 (CH09)	Ant 1 (CH05)	Ant 1 (CH09)
	-15.7	-11.6	-14.5
	Antenna Gain (dBi)		
	Ant 2 (CH09)	Ant 1 (CH05)	Ant 1 (CH09)
	1.7	-2.4	0.5
	Maximum EIRP Power (dBm)		
-14	-14	-14	



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 ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	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 ²)	Limit (mW/cm ²)	Power Density / Limit
GSM850 GSM/GPRS 1TX	0	-3.50	33.50	30.0	1.00	125.89	0.025	0.549	0.046
GSM850 GPRS 2TX	0	-3.50	32.50	29.0	0.79	198.58	0.040	0.549	0.072
GSM850 GPRS 3TX	0	-3.50	31.50	28.0	0.63	236.59	0.047	0.549	0.086
GSM850 GPRS 4TX	0	-3.50	30.50	27.0	0.50	251.19	0.050	0.549	0.091
GSM850 EDGE 1TX	0	-3.50	28.00	24.5	0.28	35.48	0.007	0.549	0.013
GSM850 EDGE 2TX	0	-3.50	27.50	24.0	0.25	62.80	0.012	0.549	0.023
GSM850 EDGE 3TX	0	-3.50	27.50	24.0	0.25	94.20	0.019	0.549	0.034
GSM850 EDGE 4TX	0	-3.50	25.50	22.0	0.16	79.24	0.016	0.549	0.029
GSM1900 GSM/GPRS 1TX	2	1.80	31.00	32.8	1.91	239.88	0.048	1.000	0.048
GSM1900 GPRS 2TX	2	1.80	29.50	31.3	1.35	337.24	0.067	1.000	0.067
GSM1900 GPRS 3TX	2	1.80	29.00	30.8	1.20	450.82	0.090	1.000	0.090
GSM1900 GPRS 4TX	2	1.80	28.00	29.8	0.95	478.63	0.095	1.000	0.095
GSM1900 EDGE 1TX	2	1.80	26.00	27.8	0.60	75.86	0.015	1.000	0.015
GSM1900 EDGE 2TX	2	1.80	25.00	26.8	0.48	119.66	0.024	1.000	0.024
GSM1900 EDGE 3TX	2	1.80	25.00	26.8	0.48	179.49	0.036	1.000	0.036
GSM1900 EDGE 4TX	2	1.80	24.00	25.8	0.38	190.09	0.038	1.000	0.038
WCDMA B2	2	1.80	25.40	27.2	0.52	524.81	0.104	1.000	0.104
WCDMA B4	2	0.50	25.40	25.9	0.39	389.05	0.077	1.000	0.077
WCDMA B5	0	-3.50	25.40	21.9	0.15	154.88	0.031	0.549	0.056
LTE B7	2	-1.80	25.40	23.6	0.23	229.09	0.046	1.000	0.046
LTE B12/17	0	-3.90	25.40	21.5	0.14	141.25	0.028	0.466	0.060
LTE B13	0	-2.70	25.40	22.7	0.19	186.21	0.037	0.518	0.072
LTE B14	0	-2.70	25.40	22.7	0.19	186.21	0.037	0.525	0.071
LTE B25/2	2	1.80	25.40	27.2	0.52	524.81	0.104	1.000	0.104
LTE B26/5	0	-3.50	25.40	21.9	0.15	154.88	0.031	0.543	0.057
LTE B30	2	0.90	23.10	24.0	0.25	251.19	0.050	1.000	0.050
LTE B38 PC3	2	-2.00	23.90	21.9	0.15	154.88	0.031	1.000	0.031
LTE B38 PC2	2	-2.00	26.90	24.9	0.31	309.03	0.062	1.000	0.062
LTE B41 PC3	2	-1.80	23.90	22.1	0.16	162.18	0.032	1.000	0.032
LTE B41 PC2	2	-1.80	26.90	25.1	0.32	323.59	0.064	1.000	0.064
LTE B48 PC3	6	0.60	22.40	23.0	0.20	199.53	0.040	1.000	0.040
LTE B66/4	2	0.70	25.40	26.1	0.41	407.38	0.081	1.000	0.081
LTE B71	0	-4.50	25.40	20.9	0.12	123.03	0.024	0.442	0.055
FR1 n7	2	-1.80	25.40	23.6	0.23	229.09	0.046	1.000	0.046
FR1 n12	0	-3.90	25.40	21.5	0.14	141.25	0.028	0.466	0.060
FR1 n25/2	2	1.80	25.40	27.2	0.52	524.81	0.104	1.000	0.104
FR1 n26/5	0	-3.50	25.40	21.9	0.15	154.88	0.031	0.543	0.057
FR1 n30	2	0.90	23.10	24.0	0.25	251.19	0.050	1.000	0.050
FR1 n38 PC3	2	-2.00	25.40	23.4	0.22	218.78	0.044	1.000	0.044
FR1 n41 PC3	2	-1.80	23.90	22.1	0.16	162.18	0.032	1.000	0.032
FR1 n41 PC2	2	-1.80	26.90	25.1	0.32	323.59	0.064	1.000	0.064
FR1 n41 PC1.5	2	-1.80	25.40	23.6	0.23	229.09	0.046	1.000	0.046
FR1 n48	6	0.60	22.40	23.0	0.20	199.53	0.040	1.000	0.040
FR1 n66	2	0.70	25.40	26.1	0.41	407.38	0.081	1.000	0.081
FR1 n70	2	-1.00	25.40	24.4	0.28	275.42	0.055	1.000	0.055
FR1 n71	0	-4.50	25.40	20.9	0.12	123.03	0.024	0.442	0.055
FR1 n77 PC3	6	0.60	24.60	25.2	0.33	331.13	0.066	1.000	0.066



FR1 n77 PC2	6	0.60	27.60	28.2	0.66	660.69	0.132	1.000	0.132
FR1 n77 PC1.5	6	0.60	26.10	26.7	0.47	467.74	0.093	1.000	0.093
FR1 n78 PC3	6	0.60	24.10	24.7	0.30	295.12	0.059	1.000	0.059
FR1 n78 PC2	6	0.60	27.10	27.7	0.59	588.84	0.117	1.000	0.117
LTE B2	1	-3.30	25.40	22.1	0.16	162.18	0.032	1.000	0.032
LTE B66/4	1	-2.30	25.40	23.1	0.20	204.17	0.041	1.000	0.041
FR1 n2	1	-3.30	25.40	22.1	0.16	162.18	0.032	1.000	0.032
FR1 n38 PC3	1	-1.70	25.40	23.7	0.23	234.42	0.047	1.000	0.047
FR1 n41 PC3	1	-1.50	23.90	22.4	0.17	173.78	0.035	1.000	0.035
FR1 n41 PC2	1	-1.50	26.90	25.4	0.35	346.74	0.069	1.000	0.069
FR1 n41 PC1.5	1	-1.50	25.40	23.9	0.25	245.47	0.049	1.000	0.049
FR1 n48	1	-3.80	22.40	18.6	0.07	72.44	0.014	1.000	0.014
FR1 n66	1	-2.30	25.40	23.1	0.20	204.17	0.041	1.000	0.041
FR1 n77 PC3	1	-2.60	24.10	21.5	0.14	141.25	0.028	1.000	0.028
FR1 n77 PC2	1	-2.60	27.10	24.5	0.28	281.84	0.056	1.000	0.056
FR1 n77 PC1.5	1	-2.60	25.60	23.0	0.20	199.53	0.040	1.000	0.040
FR1 n78 PC3	1	-2.60	24.10	21.5	0.14	141.25	0.028	1.000	0.028

TX1

Band	Antenna	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
GSM850 GSM/GPRS 1TX	1	-5.20	33.10	27.9	0.62	77.62	0.015	0.549	0.028
GSM850 GPRS 2TX	1	-5.20	32.10	26.9	0.49	122.44	0.024	0.549	0.044
GSM850 GPRS 3TX	1	-5.20	31.10	25.9	0.39	145.88	0.029	0.549	0.053
GSM850 GPRS 4TX	1	-5.20	30.10	24.9	0.31	154.88	0.031	0.549	0.056
GSM850 EDGE 1TX	1	-5.20	27.60	22.4	0.17	21.88	0.004	0.549	0.008
GSM850 EDGE 2TX	1	-5.20	27.10	21.9	0.15	38.72	0.008	0.549	0.014
GSM850 EDGE 3TX	1	-5.20	27.10	21.9	0.15	58.08	0.012	0.549	0.021
GSM850 EDGE 4TX	1	-5.20	25.10	19.9	0.10	48.86	0.010	0.549	0.018
GSM1900 GSM/GPRS 1TX	0	-0.60	30.20	29.6	0.91	114.82	0.023	1.000	0.023
GSM1900 GPRS 2TX	0	-0.60	28.70	28.1	0.65	161.41	0.032	1.000	0.032
GSM1900 GPRS 3TX	0	-0.60	28.20	27.6	0.58	215.77	0.043	1.000	0.043
GSM1900 GPRS 4TX	0	-0.60	27.20	26.6	0.46	229.09	0.046	1.000	0.046
GSM1900 EDGE 1TX	0	-0.60	25.20	24.6	0.29	36.31	0.007	1.000	0.007
GSM1900 EDGE 2TX	0	-0.60	24.20	23.6	0.23	57.27	0.011	1.000	0.011
GSM1900 EDGE 3TX	0	-0.60	24.20	23.6	0.23	85.91	0.017	1.000	0.017
GSM1900 EDGE 4TX	0	-0.60	23.20	22.6	0.18	90.99	0.018	1.000	0.018
WCDMA B2	0	-0.60	25.20	24.6	0.29	288.40	0.057	1.000	0.057
WCDMA B4	0	0.40	25.20	25.6	0.36	363.08	0.072	1.000	0.072
WCDMA B5	1	-5.20	25.50	20.3	0.11	107.15	0.021	0.549	0.039
LTE B7	0	-0.10	25.00	24.9	0.31	309.03	0.062	1.000	0.062
LTE B12/17	1	-6.20	25.50	19.3	0.09	85.11	0.017	0.466	0.036
LTE B13	1	-4.80	25.50	20.7	0.12	117.49	0.023	0.518	0.045
LTE B14	1	-4.80	25.50	20.7	0.12	117.49	0.023	0.525	0.045
LTE B25/2	0	-0.60	25.20	24.6	0.29	288.40	0.057	1.000	0.057
LTE B26/5	1	-5.20	25.40	20.2	0.10	104.71	0.021	0.543	0.038
LTE B30	0	0.60	23.40	24.0	0.25	251.19	0.050	1.000	0.050
LTE B38 PC3	0	-0.10	23.50	23.4	0.22	218.78	0.044	1.000	0.044
LTE B38 PC2	0	-0.10	26.50	26.4	0.44	436.52	0.087	1.000	0.087
LTE B41 PC3	0	-0.10	23.50	23.4	0.22	218.78	0.044	1.000	0.044
LTE B41 PC2	0	-0.10	26.50	26.4	0.44	436.52	0.087	1.000	0.087
LTE B48 PC3	7	-3.60	24.70	21.1	0.13	128.82	0.026	1.000	0.026
LTE B66/4	0	0.40	25.20	25.6	0.36	363.08	0.072	1.000	0.072



LTE B71	1	-7.00	25.50	18.5	0.07	70.79	0.014	0.442	0.032
FR1 n7	0	-0.10	24.30	24.2	0.26	263.03	0.052	1.000	0.052
FR1 n12	1	-6.20	25.20	19.0	0.08	79.43	0.016	0.466	0.034
FR1 n25/2	0	-0.60	25.20	24.6	0.29	288.40	0.057	1.000	0.057
FR1 n26/5	1	-5.20	25.40	20.2	0.10	104.71	0.021	0.543	0.038
FR1 n30	0	0.60	23.40	24.0	0.25	251.19	0.050	1.000	0.050
FR1 n38 PC3	0	-0.10	25.00	24.9	0.31	309.03	0.062	1.000	0.062
FR1 n41 PC3	0	-0.10	23.50	23.4	0.22	218.78	0.044	1.000	0.044
FR1 n41 PC2	0	-0.10	26.50	26.4	0.44	436.52	0.087	1.000	0.087
FR1 n41 PC1.5	0	-0.10	25.00	24.9	0.31	309.03	0.062	1.000	0.062
FR1 n48	7	-3.60	24.30	20.7	0.12	117.49	0.023	1.000	0.023
FR1 n66	0	0.40	25.20	25.6	0.36	363.08	0.072	1.000	0.072
FR1 n70	0	0.40	25.20	25.6	0.36	363.08	0.072	1.000	0.072
FR1 n71	1	-7.00	25.20	18.2	0.07	66.07	0.013	0.442	0.030
FR1 n77 PC3	7	-1.80	24.00	22.2	0.17	165.96	0.033	1.000	0.033
FR1 n77 PC2	7	-1.80	26.40	24.6	0.29	288.40	0.057	1.000	0.057
FR1 n77 PC1.5	7	-1.80	24.90	23.1	0.20	204.17	0.041	1.000	0.041
FR1 n78 PC3	7	-1.80	24.00	22.2	0.17	165.96	0.033	1.000	0.033
FR1 n78 PC2	7	-1.80	26.00	24.2	0.26	263.03	0.052	1.000	0.052
LTE B2	5	-3.40	25.20	21.8	0.15	151.36	0.030	1.000	0.030
LTE B6/4	5	-2.20	25.20	23.0	0.20	199.53	0.040	1.000	0.040
FR1 n2	5	-3.40	25.20	21.8	0.15	151.36	0.030	1.000	0.030
FR1 n38 PC3	5	-2.70	25.00	22.3	0.17	169.82	0.034	1.000	0.034
FR1 n41 PC3	5	-2.30	23.50	21.2	0.13	131.83	0.026	1.000	0.026
FR1 n41 PC2	5	-2.30	26.20	23.9	0.25	245.47	0.049	1.000	0.049
FR1 n41 PC1.5	5	-2.30	25.00	22.7	0.19	186.21	0.037	1.000	0.037
FR1 n48	5	-3.40	24.30	20.9	0.12	123.03	0.024	1.000	0.024
FR1 n66	5	-2.20	25.20	23.0	0.20	199.53	0.040	1.000	0.040
FR1 n77 PC3	5	-2.40	23.60	21.2	0.13	131.83	0.026	1.000	0.026
FR1 n77 PC2	5	-2.40	26.60	24.2	0.26	263.03	0.052	1.000	0.052
FR1 n77 PC1.5	5	-2.40	25.10	22.7	0.19	186.21	0.037	1.000	0.037
FR1 n78 PC3	5	-2.40	24.30	21.9	0.15	154.88	0.031	1.000	0.031

FR2 / WLAN / BT / UWB

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
5G NR n258			32.38	1.73	1729.82	0.344	1.000	0.344
5G NR n260			32.26	1.68	1682.67	0.335	1.000	0.335
5G NR n261			34.18	2.62	2618.18	0.521	1.000	0.521
WLAN2.4GHz Band	1.1	25.0	26.1	0.41	407.38	0.081	1.000	0.081
WLAN5GHz/6GHz Band	-0.4	23.0	22.6	0.18	181.97	0.036	1.000	0.036
Bluetooth	1.1	21.5	22.6	0.18	181.97	0.036	1.000	0.036
UWB			-14.00	< 0.001	0.04	< 0.001	1.000	< 0.001



Spatial TAS		2.4GHz WLAN Power Density / Limit	5GHz/6GHz WLAN Power Density / Limit	WPT	UWB	Σ(Power Density / Limit)
Maximum WWAN Power Density / Limit	Maximum WWAN Power Density / Limit					
0.132	0.132	0.081	0.036	0.116	0.001	0.498
Spatial TAS		5GHz/6GHz WLAN Power Density / Limit	Bluetooth Power Density / Limit	WPT	UWB	Σ(Power Density / Limit)
Maximum WWAN Power Density / Limit	Maximum WWAN Power Density / Limit					
0.132	0.132	0.036	0.036	0.116	0.001	0.453

5G FR2 Power Density / Limit	2.4GHz WLAN Power Density / Limit	5GHz/6GHz WLAN Power Density / Limit	WPT	UWB	Σ(Power Density / Limit)
0.521	0.081	0.036	0.116	0.001	0.755
5G FR2 Power Density / Limit	5GHz/6GHz WLAN Power Density / Limit	Bluetooth Power Density / Limit	WPT	UWB	Σ(Power Density / Limit)
0.521	0.036	0.036	0.116	0.001	0.710

Note:

1. In simultaneous transmission for this device, 5G NR including uplink MIMO and LTE transmission are managed and controlled by Samsung S.LSI TAS and also support spatial TAS on LTE and 5G FR1, while the RF exposure from WLAN,WPT, BT and UWB radios are managed using legacy approach, therefore simultaneous transmission compliance can be assessed on LTE+FR1+WLAN+UWB+WPT+BT, or FR+WLAN+UWB+WPT+BT, above power density calculation selected highest power density between LTE and 5G NR for simultaneous transmission analysis with other transmitters.
2. WPT ratio is, from Sporton WPT evaluation report (FCC ID: A4RG1MNV, Report No.: FA2D0206-01B), Ratio of 0.116 = 0.1884 / 1.63 for calculation.
3. Since the device support spatial TAS on cellular band of below 6GHz for different antenna grouping, the highest (power density/limit) among all cellular wireless modes is chosen for summation of two times with WLAN/UWB/WPT/BT.
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.