

RF Exposure Evaluation

(Mobile Condition)

FCC ID : A4RG9FPL
Equipment : Phone
Model Name : G9FPL, G0B96
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



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History of this test report

Report No.	Version	Description	Issued Date
FA262403-04A	Rev. 01	Initial issue of report	Feb. 21, 2023



1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
Equipment Name	Phone
Model Name	G9FPL, G0B96
FCC ID	A4RG9FPL
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 n14 : 788 MHz ~ 798 MHz 5G NR n25 : 1850 MHz ~ 1915 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 n71 : 663 MHz ~ 698 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 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 Client: 110 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 HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE NFC: ASK WPT Client: 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 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.
3. The device additional support uplink MIMO on n41, n48 and n77.

<WWAN Maximum Power>

<Closed mode / Open mode>

Maximum Transmit Burst Average Power (dBm)			
Band	Antenna	Duty cycle	Mobile Condition
			Index 1
GSM850 GSM/GPRS 1TX	0	12.50%	33.5
GSM850 GPRS 2TX	0	25.00%	32.5
GSM850 GPRS 3TX	0	37.50%	31.0
GSM850 GPRS 4TX	0	50.00%	30.0
GSM850 EDGE 1TX	0	12.50%	28.0
GSM850 EDGE 2TX	0	25.00%	27.5
GSM850 EDGE 3TX	0	37.50%	27.0
GSM850 EDGE 4TX	0	50.00%	25.0
GSM1900 GSM/GPRS 1TX	2	12.50%	31.0
GSM1900 GPRS 2TX	2	25.00%	29.5
GSM1900 GPRS 3TX	2	37.50%	28.5
GSM1900 GPRS 4TX	2	50.00%	27.5
GSM1900 EDGE 1TX	2	12.50%	26.0
GSM1900 EDGE 2TX	2	25.00%	25.0
GSM1900 EDGE 3TX	2	37.50%	24.5
GSM1900 EDGE 4TX	2	50.00%	23.5
WCDMA B2	2	100.00%	25.2
WCDMA B4	2	100.00%	25.7
WCDMA B5	0	100.00%	25.0
LTE B7	2	100.00%	25.7
LTE B12/B17	0	100.00%	25.7
LTE B13	0	100.00%	25.7
LTE B14	0	100.00%	25.7
LTE B25/B2	2	100.00%	25.7
LTE B26/B5	0	100.00%	25.7
LTE B30	2	100.00%	23.7
LTE B38 PC3	2	63.30%	25.7
LTE B38 PC2	2	43.30%	27.4
LTE B41 PC3	2	63.30%	25.4
LTE B41 PC2	2	43.30%	27.4
LTE B48 PC3	6	63.30%	25.7
LTE B66/B4	2	100.00%	25.7
LTE B71	0	100.00%	25.7
FR1 n5	0	100.00%	25.7
FR1 n7	2	100.00%	25.7
FR1 n12	0	100.00%	25.7
FR1 n14	0	100.00%	25.7
FR1 n25/n2	2	100.00%	25.7
FR1 n30	2	100.00%	23.7
FR1 n38 PC3	2	100.00%	25.7
FR1 n41 PC3	2	100.00%	25.4



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FR1 n41 PC2	2	50.00%	27.4
FR1 n48 PC3	6	100.00%	25.7
FR1 n66	2	100.00%	25.7
FR1 n71	0	100.00%	25.7
FR1 n77 PC3	6	100.00%	25.1
FR1 n77 PC2	6	50.00%	27.1
LTE B2 Sub	1	100.00%	25.7
LTE B66/B4 Sub	1	100.00%	25.7
FR1 n2 Sub	1	100.00%	25.7
FR1 n38 PC3 Sub	1	100.00%	25.2
FR1 n41 PC3 Sub	1	100.00%	25.2
FR1 n41 PC2 Sub	1	50.00%	27.2
FR1 n48 PC3 Sub	1	100.00%	25.3
FR1 n66 Sub	1	100.00%	25.7
FR1 n77 Sub	1	100.00%	25.3

Maximum Transmit Burst Average Power (dBm)			
Band	Antenna	Duty cycle	Mobile Condition
			Index 1
GSM850 GSM/GPRS 1TX	1	12.50%	33.5
GSM850 GPRS 2TX	1	25.00%	32.5
GSM850 GPRS 3TX	1	37.50%	31.0
GSM850 GPRS 4TX	1	50.00%	30.0
GSM850 EDGE 1TX	1	12.50%	28.0
GSM850 EDGE 2TX	1	25.00%	27.5
GSM850 EDGE 3TX	1	37.50%	27.0
GSM850 EDGE 4TX	1	50.00%	25.0
GSM1900 GSM/GPRS 1TX	0	12.50%	31.0
GSM1900 GPRS 2TX	0	25.00%	29.5
GSM1900 GPRS 3TX	0	37.50%	28.5
GSM1900 GPRS 4TX	0	50.00%	27.5
GSM1900 EDGE 1TX	0	12.50%	26.0
GSM1900 EDGE 2TX	0	25.00%	25.0
GSM1900 EDGE 3TX	0	37.50%	24.5
GSM1900 EDGE 4TX	0	50.00%	23.5
WCDMA B2	0	100.00%	25.2
WCDMA B4	0	100.00%	25.7
WCDMA B5	1	100.00%	25.0
LTE B7	0	100.00%	25.7
LTE B12/B17	1	100.00%	25.7
LTE B13	1	100.00%	25.7
LTE B14	1	100.00%	25.7
LTE B25/B2	0	100.00%	25.7
LTE B26/B5	1	100.00%	25.7
LTE B30	0	100.00%	23.7
LTE B38 PC3	0	63.30%	25.7
LTE B38 PC2	0	43.30%	27.4
LTE B41 PC3	0	63.30%	25.4
LTE B41 PC2	0	43.30%	27.4
LTE B48 PC3	2	63.30%	25.2
LTE B66/B4	0	100.00%	25.7
LTE B71	1	100.00%	25.7
FR1 n5	1	100.00%	25.7
FR1 n7	0	100.00%	25.7



FR1 n12	1	100.00%	25.7
FR1 n14	1	100.00%	25.7
FR1 n25/n2	0	100.00%	25.7
FR1 n30	0	100.00%	23.7
FR1 n38 PC3	0	100.00%	25.7
FR1 n41 PC3	0	100.00%	25.4
FR1 n41 PC2	0	50.00%	27.4
FR1 n48 PC3	2	100.00%	25.7
FR1 n66	0	100.00%	25.7
FR1 n71	1	100.00%	25.7
FR1 n77 PC3	2	100.00%	25.1
FR1 n77 PC2	2	50.00%	27.7
LTE B2 Sub	5	100.00%	25.7
LTE B66/B4 Sub	5	100.00%	25.7
FR1 n2 Sub	5	100.00%	25.7
FR1 n38 PC3 Sub	5	100.00%	25.2
FR1 n41 PC3 Sub	5	100.00%	25.2
FR1 n41 PC2 Sub	5	50.00%	27.2
FR1 n48 PC3 Sub	5	100.00%	25.3
FR1 n66 Sub	5	100.00%	25.7
FR1 n77 Sub	5	100.00%	25.3

<Closed mode / Open mode>

Band	EIRP (dBm)
5G NR n258	33.29
5G NR n260	32.18
5G NR n261	36.26



<WLAN Maximum Power Table>

<Closed mode / Open mode>

<2.4GHz WLAN>

Burst Average Power (dBm)						
Device mode				Open mode	Close mode	
Transmit Antenna				SISO Ant 3	SISO Ant 3	
2.4GHz WLAN	Mode	Tune-Up Limit	Frequency (MHz)	Tune-Up Limit	Tune-Up Limit	
	802.11b 1Mbps	1		2412	23.00	23.00
		6		2437	23.00	23.00
		11		2462	23.00	23.00
		12		2467	23.00	23.00
		13		2472	19.00	19.00

Burst Average Power (dBm)						
Device mode				Open mode	Close mode	
Transmit Antenna				SISO Ant 4	SISO Ant 4	
2.4GHz WLAN	Mode	Tune-Up Limit	Frequency (MHz)	Tune-Up Limit	Tune-Up Limit	
	802.11b 1Mbps	1		2412	23.00	23.00
		6		2437	23.00	23.00
		11		2462	23.00	23.00
		12		2467	23.00	23.00
		13		2472	20.00	20.00

Burst Average Power (dBm)										
Device mode				Open mode			Close mode			
Transmit Antenna				MIMO			MIMO			
2.4GHz WLAN	Mode	Channel	Frequency (MHz)	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	
				Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	
	802.11g 6Mbps		1	2412	21.50	21.50	24.50	21.50	21.50	24.50
			6	2437	23.00	23.00	26.00	23.00	23.00	26.00
			11	2462	20.50	20.50	23.50	20.50	20.50	23.50
			12	2467	16.00	16.00	19.00	16.00	16.00	19.00
			13	2472	13.00	13.00	16.00	13.00	13.00	16.00
	802.11n-HT20 MCS0		1	2412	20.50	20.50	23.50	20.50	20.50	23.50
			6	2437	23.00	23.00	26.00	23.00	23.00	26.00
			11	2462	19.00	19.00	22.00	19.00	19.00	22.00
			12	2467	16.50	16.50	19.50	16.50	16.50	19.50
	802.11ac-VHT20 MCS0		13	2472	14.50	14.50	17.50	14.50	14.50	17.50
			1	2412	20.50	20.50	23.50	20.50	20.50	23.50
			6	2437	23.00	23.00	26.00	23.00	23.00	26.00
			11	2462	19.00	19.00	22.00	19.00	19.00	22.00
	802.11ax-HE20 MCS0		12	2467	16.50	16.50	19.50	16.50	16.50	19.50
			13	2472	14.50	14.50	17.50	14.50	14.50	17.50
			1	2412	20.50	20.50	23.50	20.50	20.50	23.50
			6	2437	23.00	23.00	26.00	23.00	23.00	26.00
			11	2462	19.00	19.00	22.00	19.00	19.00	22.00
12			2467	16.50	16.50	19.50	16.50	16.50	19.50	
13			2472	14.50	14.50	17.50	14.50	14.50	17.50	
1			2412	20.50	20.50	23.50	20.50	20.50	23.50	



<5GHz WLAN>

Burst Average Power (dBm)									
Device mode				Open mode			Close mode		
Transmit Antenna				MIMO			MIMO		
5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4
				Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit
802.11a 6Mbps		36	5180	17.00	17.00	20.00	17.00	17.00	20.00
		40	5200	18.00	18.00	21.00	18.00	18.00	21.00
		44	5220	19.50	19.50	22.50	19.50	19.50	22.50
		48	5240	18.00	18.00	21.00	18.00	18.00	21.00
802.11n-HT20 MCS0		36	5180	18.50	18.50	21.50	18.50	18.50	21.50
		40	5200	19.00	19.00	22.00	19.00	19.00	22.00
		44	5220	20.00	20.00	23.00	20.00	20.00	23.00
		48	5240	19.00	19.00	22.00	19.00	19.00	22.00
802.11n-HT40 MCS0		38	5190	16.00	16.00	19.00	16.00	16.00	19.00
		46	5230	20.00	20.00	23.00	20.00	20.00	23.00
802.11ac-VHT20 MCS0		36	5180	18.50	18.50	21.50	18.50	18.50	21.50
		40	5200	19.00	19.00	22.00	19.00	19.00	22.00
		44	5220	20.00	20.00	23.00	20.00	20.00	23.00
		48	5240	19.00	19.00	22.00	19.00	19.00	22.00
802.11ac-VHT40 MCS0		38	5190	16.00	16.00	19.00	16.00	16.00	19.00
		46	5230	20.00	20.00	23.00	20.00	20.00	23.00
802.11ac-VHT80 MCS0		42	5210	16.00	16.00	19.00	16.00	16.00	19.00
802.11ax-HE20 MCS0		36	5180	18.50	18.50	21.50	18.50	18.50	21.50
		40	5200	19.00	19.00	22.00	19.00	19.00	22.00
		44	5220	20.00	20.00	23.00	20.00	20.00	23.00
		48	5240	19.00	19.00	22.00	19.00	19.00	22.00
802.11ax-HE40 MCS0		38	5190	16.50	16.50	19.50	16.50	16.50	19.50
		46	5230	20.00	20.00	23.00	20.00	20.00	23.00
802.11ax-HE80 MCS0		42	5210	16.00	16.00	19.00	16.00	16.00	19.00



Burst Average Power (dBm)									
Device mode				Open mode			Close mode		
Transmit Antenna				MIMO			MIMO		
5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4
				Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit
802.11a 6Mbps		52	5260	18.00	18.00	21.00	18.00	18.00	21.00
		56	5280	19.00	19.00	22.00	19.00	19.00	22.00
		60	5300	19.50	19.50	22.50	19.50	19.50	22.50
		64	5320	19.00	19.00	22.00	19.00	19.00	22.00
802.11n-HT20 MCS0		52	5260	19.00	19.00	22.00	19.00	19.00	22.00
		56	5280	19.00	19.00	22.00	19.00	19.00	22.00
		60	5300	20.00	20.00	23.00	20.00	20.00	23.00
		64	5320	19.00	19.00	22.00	19.00	19.00	22.00
802.11n-HT40 MCS0		54	5270	20.00	20.00	23.00	20.00	20.00	23.00
		62	5310	17.00	17.00	20.00	17.00	17.00	20.00
802.11ac-VHT20 MCS0		52	5260	19.00	19.00	22.00	19.00	19.00	22.00
		56	5280	19.00	19.00	22.00	19.00	19.00	22.00
		60	5300	20.00	20.00	23.00	20.00	20.00	23.00
		64	5320	19.00	19.00	22.00	19.00	19.00	22.00
802.11ac-VHT40 MCS0		54	5270	20.00	20.00	23.00	20.00	20.00	23.00
		62	5310	17.00	17.00	20.00	17.00	17.00	20.00
802.11ac-VHT80 MCS0		58	5290	16.50	16.50	19.50	16.50	16.50	19.50
802.11ac-VHT160 MCS0		50	5250	13.50	13.50	16.50	13.50	13.50	16.50
802.11ax-HE20 MCS0		52	5260	19.00	19.00	22.00	19.00	19.00	22.00
		56	5280	19.00	19.00	22.00	19.00	19.00	22.00
		60	5300	20.00	20.00	23.00	20.00	20.00	23.00
		64	5320	19.00	19.00	22.00	19.00	19.00	22.00
802.11ax-HE40 MCS0		54	5270	20.00	20.00	23.00	20.00	20.00	23.00
		62	5310	17.00	17.00	20.00	17.00	17.00	20.00
802.11ax-HE80 MCS0		58	5290	16.50	16.50	19.50	16.50	16.50	19.50
802.11ax-HE160 MCS0		50	5250	13.50	13.50	16.50	13.50	13.50	16.50



Burst Average Power (dBm)									
Device mode				Open mode			Close mode		
Transmit Antenna				MIMO			MIMO		
Mode	Channel	Frequency (MHz)	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	
			Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	
5.5GHz WLAN	802.11a 6Mbps	100	5500	16.00	16.00	19.00	16.00	16.00	19.00
		116	5580	16.00	16.00	19.00	16.00	16.00	19.00
		124	5620	15.00	15.00	18.00	15.00	15.00	18.00
		132	5660	16.00	16.00	19.00	16.00	16.00	19.00
		144	5720	15.50	15.50	18.50	15.50	15.50	18.50
	802.11n-HT20 MCS0	100	5500	16.00	16.00	19.00	16.00	16.00	19.00
		116	5580	16.50	16.50	19.50	16.50	16.50	19.50
		124	5620	16.00	16.00	19.00	16.00	16.00	19.00
		132	5660	16.50	16.50	19.50	16.50	16.50	19.50
		144	5720	16.00	16.00	19.00	16.00	16.00	19.00
	802.11n-HT40 MCS0	102	5510	17.00	17.00	20.00	17.00	17.00	20.00
		110	5550	16.50	16.50	19.50	16.50	16.50	19.50
		126	5630	17.00	17.00	20.00	17.00	17.00	20.00
		134	5670	19.50	19.50	22.50	19.50	19.50	22.50
		142	5710	17.50	17.50	20.50	17.50	17.50	20.50
	802.11ac-VHT20 MCS0	100	5500	16.00	16.00	19.00	16.00	16.00	19.00
		116	5580	16.50	16.50	19.50	16.50	16.50	19.50
		124	5620	16.00	16.00	19.00	16.00	16.00	19.00
		132	5660	16.50	16.50	19.50	16.50	16.50	19.50
		144	5720	16.00	16.00	19.00	16.00	16.00	19.00
802.11ac-VHT40 MCS0	102	5510	17.00	17.00	20.00	17.00	17.00	20.00	
	110	5550	16.50	16.50	19.50	16.50	16.50	19.50	
	126	5630	17.00	17.00	20.00	17.00	17.00	20.00	
	134	5670	19.50	19.50	22.50	19.50	19.50	22.50	
	142	5710	17.50	17.50	20.50	17.50	17.50	20.50	
802.11ac-VHT80 MCS0	106	5530	17.00	17.00	20.00	17.00	17.00	20.00	
	122	5610	19.00	19.00	22.00	19.00	19.00	22.00	
	138	5690	18.50	18.50	21.50	18.50	18.50	21.50	
802.11ac-VHT160 MCS0	114	5570	14.50	14.50	17.50	14.50	14.50	17.50	
802.11ax-HE20 MCS0	100	5500	16.00	16.00	19.00	16.00	16.00	19.00	
	116	5580	16.50	16.50	19.50	16.50	16.50	19.50	
	124	5620	16.00	16.00	19.00	16.00	16.00	19.00	
	132	5660	16.50	16.50	19.50	16.50	16.50	19.50	
	144	5720	16.00	16.00	19.00	16.00	16.00	19.00	
802.11ax-HE40 MCS0	102	5510	17.00	17.00	20.00	17.00	17.00	20.00	
	110	5550	16.50	16.50	19.50	16.50	16.50	19.50	
	126	5630	17.00	17.00	20.00	17.00	17.00	20.00	
	134	5670	19.50	19.50	22.50	19.50	19.50	22.50	
	142	5710	17.50	17.50	20.50	17.50	17.50	20.50	
802.11ax-HE80 MCS0	106	5530	17.00	17.00	20.00	17.00	17.00	20.00	
	122	5610	19.00	19.00	22.00	19.00	19.00	22.00	
	138	5690	18.50	18.50	21.50	18.50	18.50	21.50	
802.11ax-HE160 MCS0	114	5570	14.50	14.50	17.50	14.50	14.50	17.50	



Burst Average Power (dBm)									
Device mode				Open mode			Close mode		
Transmit Antenna				MIMO			MIMO		
5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4
				Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit
802.11a 6Mbps		149	5745	16.00	16.00	19.00	16.00	16.00	19.00
		157	5785	16.00	16.00	19.00	16.00	16.00	19.00
		165	5825	17.50	17.50	20.50	17.50	17.50	20.50
802.11n-HT20 MCS0		149	5745	16.00	16.00	19.00	16.00	16.00	19.00
		157	5785	16.00	16.00	19.00	16.00	16.00	19.00
		165	5825	17.50	17.50	20.50	17.50	17.50	20.50
802.11n-HT40 MCS0		151	5755	18.50	18.50	21.50	18.50	18.50	21.50
		159	5795	18.50	18.50	21.50	18.50	18.50	21.50
802.11ac-VHT20 MCS0		149	5745	16.00	16.00	19.00	16.00	16.00	19.00
		157	5785	16.00	16.00	19.00	16.00	16.00	19.00
		165	5825	17.50	17.50	20.50	17.50	17.50	20.50
802.11ac-VHT40 MCS0		151	5755	18.50	18.50	21.50	18.50	18.50	21.50
		159	5795	18.50	18.50	21.50	18.50	18.50	21.50
802.11ac-VHT80 MCS0		155	5775	20.00	20.00	23.00	20.00	20.00	23.00
802.11ax-HE20 MCS0		149	5745	16.00	16.00	19.00	16.00	16.00	19.00
		157	5785	16.00	16.00	19.00	16.00	16.00	19.00
		165	5825	17.50	17.50	20.50	17.50	17.50	20.50
802.11ax-HE40 MCS0		151	5755	18.50	18.50	21.50	18.50	18.50	21.50
		159	5795	18.50	18.50	21.50	18.50	18.50	21.50
802.11ax-HE80 MCS0		155	5775	20.00	20.00	23.00	20.00	20.00	23.00

Burst Average Power (dBm)									
Device mode				Open mode			Close mode		
Transmit Antenna				MIMO			MIMO		
5.9GHz WLAN	Mode	Channel	Frequency (MHz)	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4
				Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit
802.11a 6Mbps		169	5845	17.00	17.00	20.00	17.00	17.00	20.00
		173	5865	17.00	17.00	20.00	17.00	17.00	20.00
		177	5885	16.00	16.00	19.00	16.00	16.00	19.00
802.11n-HT20 MCS0		169	5845	17.00	17.00	20.00	17.00	17.00	20.00
		173	5865	17.00	17.00	20.00	17.00	17.00	20.00
		177	5885	17.50	17.50	20.50	17.50	17.50	20.50
802.11n-HT40 MCS0		167	5835	18.50	18.50	21.50	18.50	18.50	21.50
		175	5875	18.50	18.50	21.50	18.50	18.50	21.50
802.11ac-VHT20 MCS0		169	5845	17.00	17.00	20.00	17.00	17.00	20.00
		173	5865	17.00	17.00	20.00	17.00	17.00	20.00
		177	5885	17.50	17.50	20.50	17.50	17.50	20.50
802.11ac-VHT40 MCS0		167	5835	18.50	18.50	21.50	18.50	18.50	21.50
		175	5875	18.50	18.50	21.50	18.50	18.50	21.50
802.11ac-VHT80 MCS0		171	5855	20.00	20.00	23.00	20.00	20.00	23.00
802.11ac-VHT160 MCS0		163	5815	20.00	20.00	23.00	20.00	20.00	23.00
802.11ax-HE20 MCS0		169	5845	17.00	17.00	20.00	17.00	17.00	20.00
		173	5865	17.00	17.00	20.00	17.00	17.00	20.00
		177	5885	17.50	17.50	20.50	17.50	17.50	20.50
802.11ax-HE40 MCS0		167	5835	18.50	18.50	21.50	18.50	18.50	21.50
		175	5875	18.50	18.50	21.50	18.50	18.50	21.50
802.11ax-HE80 MCS0		171	5855	20.00	20.00	23.00	20.00	20.00	23.00
802.11ax-HE160 MCS0		163	5815	20.00	20.00	23.00	20.00	20.00	23.00



<6GHz WLAN SP>

Burst Average Power (dBm)									
Device mode				Open mode			Closed mode		
Transmit Antenna				MIMO			MIMO		
Mode	Channel	Frequency (MHz)	Ant 4+3(4)	Ant 4+3(3)	Ant 4+3	Ant 4+3(4)	Ant 4+3(3)	Ant 4+3	
			Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	
WiFi 6E	802.11a 6Mbps	1	5955	20.50	20.50	23.50	20.50	20.50	23.50
		57	6235	20.00	20.00	23.00	20.00	20.00	23.00
		173	6815	20.50	20.50	23.50	20.50	20.50	23.50
	802.11ax-HE20 MCS0	1	5955	19.50	19.50	22.50	19.50	19.50	22.50
		57	6235	19.50	19.50	22.50	19.50	19.50	22.50
		173	6815	20.00	20.00	23.00	20.00	20.00	23.00
	802.11ax-HE40 MCS0	3	5965	20.00	20.00	23.00	20.00	20.00	23.00
		59	6245	19.50	19.50	22.50	19.50	19.50	22.50
		171	6805	20.00	20.00	23.00	20.00	20.00	23.00
802.11ax-HE80 MCS0	7	5985	20.00	20.00	23.00	20.00	20.00	23.00	
	71	6305	19.00	19.00	22.00	19.00	19.00	22.00	
	167	6785	19.50	19.50	22.50	19.50	19.50	22.50	
802.11ax-HE160 MCS0	15	6025	19.00	19.00	22.00	19.00	19.00	22.00	
	47	6185	18.00	18.00	21.00	18.00	18.00	21.00	
	143	6665	19.00	19.00	22.00	19.00	19.00	22.00	

<6GHz WLAN LPI>

Burst Average Power (dBm)									
Device mode				Open mode			Close mode		
Transmit Antenna				MIMO			MIMO		
Mode	Channel	Frequency (MHz)	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	
			Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	Tune-Up Limit	
WiFi 6E	802.11a 6Mbps	1	5955	5.50	5.50	8.50	5.50	5.50	8.50
		57	6235	5.50	5.50	8.50	5.50	5.50	8.50
		113	6515	6.00	6.00	9.00	6.00	6.00	9.00
		173	6815	7.00	7.00	10.00	7.00	7.00	10.00
		233	7115	7.00	7.00	10.00	7.00	7.00	10.00
	802.11ax-HE20 MCS0	1	5955	6.50	6.50	9.50	6.50	6.50	9.50
		57	6235	5.50	5.50	8.50	5.50	5.50	8.50
		113	6515	6.50	6.50	9.50	6.50	6.50	9.50
		173	6815	7.00	7.00	10.00	7.00	7.00	10.00
		233	7115	9.00	9.00	12.00	9.00	9.00	12.00
	802.11ax-HE40 MCS0	3	5965	9.50	9.50	12.50	9.50	9.50	12.50
		59	6245	9.00	9.00	12.00	9.00	9.00	12.00
		107	6485	10.00	10.00	13.00	10.00	10.00	13.00
		171	6805	10.50	10.50	13.50	10.50	10.50	13.50
		227	7085	12.50	12.50	15.50	12.50	12.50	15.50
	802.11ax-HE80 MCS0	7	5985	11.50	11.50	14.50	11.50	11.50	14.50
71		6305	11.50	11.50	14.50	11.50	11.50	14.50	
119		6545	13.00	13.00	16.00	13.00	13.00	16.00	
167		6785	13.00	13.00	16.00	13.00	13.00	16.00	
215		7025	13.50	13.50	16.50	13.50	13.50	16.50	
802.11ax-HE160 MCS0	15	6025	14.50	14.50	17.50	14.50	14.50	17.50	
	47	6185	14.50	14.50	17.50	14.50	14.50	17.50	
	111	6505	16.00	16.00	19.00	16.00	16.00	19.00	
	143	6665	15.50	15.50	18.50	15.50	15.50	18.50	
	207	6985	16.00	16.00	19.00	16.00	16.00	19.00	



<Bluetooth Maximum Power>

<Closed mode / Open mode>

Burst Average Power (dBm)										
Device mode	Open mode					Closed mode				
Mode	Ant 3			Ant 3		Ant 3			Ant 3	
	BR / EDR			LE		BR / EDR			LE	
	1Mbps	2Mbps	3Mbps	1Mbps	2Mbps	1Mbps	2Mbps	3Mbps	1Mbps	2Mbps
Tune-up Limit	21.00	18.50	17.50	21.00	21.00	21.00	18.50	17.50	21.00	21.00

Burst Average Power (dBm)										
Device mode	Open mode					Closed mode				
Mode	Ant 4			Ant 4		Ant 4			Ant 4	
	BR / EDR			LE		BR / EDR			LE	
	1Mbps	2Mbps	3Mbps	1Mbps	2Mbps	1Mbps	2Mbps	3Mbps	1Mbps	2Mbps
Tune-up Limit	21.00	18.50	17.00	21.00	21.00	21.00	18.50	17.00	21.00	21.00

Burst Average Power (dBm)																			
Device mode		Open mode									Closed mode								
Mode	BR / EDR	1Mbps			2Mbps			3Mbps			1Mbps			2Mbps			3Mbps		
		Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4
Tune-up Limit		18.00	18.00	21.00	15.00	15.00	18.00	15.00	15.00	18.00	18.00	18.00	21.00	15.00	15.00	18.00	15.00	15.00	18.00

Burst Average Power (dBm)												
Device mode		Open mode						Closed mode				
Mode	LE	1Mbps			2Mbps			1Mbps			2Mbps	
		Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)	Ant 3+4	Ant 3+4(3)	Ant 3+4(4)
Tune-up Limit		19.50	19.50	22.50	21.00	21.00	24.00	19.50	19.50	22.50	21.00	24.00



<UWB Maximum Power>

<Closed mode>

UWB	Maximum Average Power (dBm)			
	Ant 0	Ant 1	Ant 3 (CH05)	Ant 3 (CH09)
	-14.9	-14.5	-11	-8.9
	Antenna Gain (dBi)			
	Ant 0	Ant 1	Ant 3 (CH05)	Ant 3 (CH09)
	0.7	0.5	-3.1	-5.2
	Maximum EIRP Power (dBm)			
-14				

<Open mode>

UWB	Maximum Average Power (dBm)			
	Ant 0	Ant 1	Ant 3 (CH05)	Ant 3 (CH09)
	-14.9	-14.5	-11	-8.9
	Antenna Gain (dBi)			
	Ant 0	Ant 1	Ant 3 (CH05)	Ant 3 (CH09)
	0.9	0.5	-3.0	-5.1
	Maximum EIRP Power (dBm)			
-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

<Closed mode>

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	-5.08	33.50	28.4	0.70	87.50	0.017	0.549	0.032
GSM850 GPRS 2TX	0	-5.08	32.50	27.4	0.55	138.02	0.027	0.549	0.050
GSM850 GPRS 3TX	0	-5.08	31.00	25.9	0.39	146.55	0.029	0.549	0.053
GSM850 GPRS 4TX	0	-5.08	30.00	24.9	0.31	155.60	0.031	0.549	0.056
GSM850 EDGE 1TX	0	-5.08	28.00	22.9	0.20	24.66	0.005	0.549	0.009
GSM850 EDGE 2TX	0	-5.08	27.50	22.4	0.17	43.65	0.009	0.549	0.016
GSM850 EDGE 3TX	0	-5.08	27.00	21.9	0.16	58.35	0.012	0.549	0.021
GSM850 EDGE 4TX	0	-5.08	25.00	19.9	0.10	49.09	0.010	0.549	0.018
GSM1900 GSM/GPRS 1TX	2	-0.25	31.00	30.8	1.19	149.62	0.030	1.000	0.030
GSM1900 GPRS 2TX	2	-0.25	29.50	29.3	0.84	210.35	0.042	1.000	0.042
GSM1900 GPRS 3TX	2	-0.25	28.50	28.3	0.67	250.61	0.050	1.000	0.050
GSM1900 GPRS 4TX	2	-0.25	27.50	27.3	0.53	266.07	0.053	1.000	0.053
GSM1900 EDGE 1TX	2	-0.25	26.00	25.8	0.38	47.32	0.009	1.000	0.009
GSM1900 EDGE 2TX	2	-0.25	25.00	24.8	0.30	74.63	0.015	1.000	0.015
GSM1900 EDGE 3TX	2	-0.25	24.50	24.3	0.27	99.78	0.020	1.000	0.020
GSM1900 EDGE 4TX	2	-0.25	23.50	23.3	0.21	105.67	0.021	1.000	0.021
WCDMA B2	2	-0.25	25.20	25.0	0.31	312.61	0.062	1.000	0.062
WCDMA B4	2	-1.32	25.70	24.4	0.27	274.16	0.055	1.000	0.055
WCDMA B5	0	-5.08	25.00	19.9	0.10	98.17	0.020	0.549	0.036
LTE B2 Sub	1	-0.73	25.70	25.0	0.31	314.05	0.063	1.000	0.063
LTE B7	2	-0.49	25.70	25.2	0.33	331.89	0.066	1.000	0.066
LTE B12/B17	0	-5.41	25.70	20.3	0.11	106.91	0.021	0.466	0.046
LTE B13	0	-4.27	25.70	21.4	0.14	139.00	0.028	0.518	0.053
LTE B14	0	-4.86	25.70	20.8	0.12	121.34	0.024	0.525	0.046
LTE B25/B2	2	-0.25	25.70	25.5	0.35	350.75	0.070	1.000	0.070
LTE B26/B5	0	-5.08	25.70	20.6	0.12	115.35	0.023	0.543	0.042
LTE B30	2	-1.10	23.70	22.6	0.18	181.97	0.036	1.000	0.036
LTEB38 PC3	2	-0.55	25.70	25.2	0.33	327.34	0.065	1.000	0.065
LTE B38 PC2	2	-0.55	27.40	26.9	0.48	484.17	0.096	1.000	0.096
LTE B41 PC3	2	-0.20	25.40	25.2	0.33	331.13	0.066	1.000	0.066
LTE B41 PC2	2	-0.20	27.40	27.2	0.52	524.81	0.104	1.000	0.104
LTE B48 PC3	6	-6.78	25.70	18.9	0.08	77.98	0.016	1.000	0.016
LTE B66/B4	2	-1.32	25.70	24.4	0.27	274.16	0.055	1.000	0.055
LTE B66/B4 Sub	1	-4.54	25.70	21.2	0.13	130.62	0.026	1.000	0.026
LTE B71	0	-6.56	25.70	19.1	0.08	82.04	0.016	0.442	0.037
FR1 n5	0	-5.08	25.70	20.6	0.12	115.35	0.023	0.549	0.042
FR1 n7	2	-0.49	25.70	25.2	0.33	331.89	0.066	1.000	0.066
FR1 n12	0	-5.52	25.70	20.2	0.10	104.23	0.021	0.466	0.045
FR1 n14	0	-4.86	25.70	20.8	0.12	121.34	0.024	0.525	0.046
FR1 n25/n2	2	-0.25	25.70	25.5	0.35	350.75	0.070	1.000	0.070
FR1 n2 Sub	1	-0.73	25.70	25.0	0.31	314.05	0.063	1.000	0.063
FR1 n30	2	-1.10	23.70	22.6	0.18	181.97	0.036	1.000	0.036
FR1 n38 PC3	2	-0.55	25.70	25.2	0.33	327.34	0.065	1.000	0.065
FR1 n38 PC3 Sub	1	-6.34	25.20	18.9	0.08	76.91	0.015	1.000	0.015
FR1 n41 PC3	2	-0.20	25.40	25.2	0.33	331.13	0.066	1.000	0.066
FR1 n41 PC3 Sub	1	-6.30	25.20	18.9	0.08	77.62	0.015	1.000	0.015
FR1 n41 PC2	2	-0.20	27.40	27.2	0.52	524.81	0.104	1.000	0.104



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FR1 n41 PC2 Sub	1	-6.30	27.20	20.9	0.12	123.03	0.024	1.000	0.024
FR1 n48 PC3	6	-6.78	25.70	18.9	0.08	77.98	0.016	1.000	0.016
FR1 n48 PC3 Sub	1	-7.62	25.30	17.7	0.06	58.61	0.012	1.000	0.012
FR1 n66	2	-1.32	25.70	24.4	0.27	274.16	0.055	1.000	0.055
FR1 n66 Sub	1	-4.54	25.70	21.2	0.13	130.62	0.026	1.000	0.026
FR1 n71	0	-6.56	25.70	19.1	0.08	82.04	0.016	0.442	0.037
FR1 n77 PC3	6	-4.38	25.10	20.7	0.12	118.03	0.023	1.000	0.023
FR1 n77 PC2	6	-4.38	27.10	22.7	0.19	187.07	0.037	1.000	0.037
FR1 n77 Sub	1	-6.32	25.30	19.0	0.08	79.07	0.016	1.000	0.016

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	-9.33	33.50	24.2	0.26	32.89	0.007	0.549	0.012
GSM850 GPRS 2TX	1	-9.33	32.50	23.2	0.21	51.87	0.010	0.549	0.019
GSM850 GPRS 3TX	1	-9.33	31.00	21.7	0.15	55.08	0.011	0.549	0.020
GSM850 GPRS 4TX	1	-9.33	30.00	20.7	0.12	58.48	0.012	0.549	0.021
GSM850 EDGE 1TX	1	-9.33	28.00	18.7	0.07	9.27	0.002	0.549	0.003
GSM850 EDGE 2TX	1	-9.33	27.50	18.2	0.07	16.40	0.003	0.549	0.006
GSM850 EDGE 3TX	1	-9.33	27.00	17.7	0.06	21.93	0.004	0.549	0.008
GSM850 EDGE 4TX	1	-9.33	25.00	15.7	0.04	18.45	0.004	0.549	0.007
GSM1900 GSM/GPRS 1TX	0	-1.93	31.00	29.1	0.81	101.62	0.020	1.000	0.020
GSM1900 GPRS 2TX	0	-1.93	29.50	27.6	0.57	142.87	0.028	1.000	0.028
GSM1900 GPRS 3TX	0	-1.93	28.50	26.6	0.45	170.22	0.034	1.000	0.034
GSM1900 GPRS 4TX	0	-1.93	27.50	25.6	0.36	180.72	0.036	1.000	0.036
GSM1900 EDGE 1TX	0	-1.93	26.00	24.1	0.26	32.14	0.006	1.000	0.006
GSM1900 EDGE 2TX	0	-1.93	25.00	23.1	0.20	50.69	0.010	1.000	0.010
GSM1900 EDGE 3TX	0	-1.93	24.50	22.6	0.18	67.77	0.013	1.000	0.013
GSM1900 EDGE 4TX	0	-1.93	23.50	21.6	0.14	71.77	0.014	1.000	0.014
WCDMA B2	0	-1.93	25.20	23.3	0.21	212.32	0.042	1.000	0.042
WCDMA B4	0	-3.98	25.70	21.7	0.15	148.59	0.030	1.000	0.030
WCDMA B5	1	-9.33	25.00	15.7	0.04	36.90	0.007	0.549	0.013
LTE B2 Sub	5	-18.37	25.70	7.3	0.01	5.41	0.001	1.000	0.001
LTE B7	0	-5.62	25.70	20.1	0.10	101.86	0.020	1.000	0.020
LTE B12/B17	1	-7.68	25.70	18.0	0.06	63.39	0.013	0.466	0.027
LTE B13	1	7.37	25.70	33.1	2.03	2027.68	0.404	0.518	0.779
LTE B14	1	7.37	25.70	33.1	2.03	2027.68	0.404	0.525	0.768
LTE B25/B2	0	-1.93	25.70	23.8	0.24	238.23	0.047	1.000	0.047
LTE B26/B5	1	-9.33	25.70	16.4	0.04	43.35	0.009	0.543	0.016
LTE B30	0	-3.79	23.70	19.9	0.10	97.95	0.019	1.000	0.019
LTEB38 PC3	0	-5.59	25.70	20.1	0.10	102.57	0.020	1.000	0.020
LTE B38 PC2	0	-5.59	27.40	21.8	0.15	151.71	0.030	1.000	0.030
LTE B41 PC3	0	-5.42	25.40	20.0	0.10	99.54	0.020	1.000	0.020
LTE B41 PC2	0	-5.42	27.40	22.0	0.16	157.76	0.031	1.000	0.031
LTE B48 PC3	2	-6.57	25.20	18.6	0.07	72.95	0.015	1.000	0.015
LTE B66/B4	0	-3.98	25.70	21.7	0.15	148.59	0.030	1.000	0.030
LTE B66/B4 Sub	5	-20.99	25.70	4.7	0.00	2.96	0.001	1.000	0.001
LTE B71	1	-9.17	25.70	16.5	0.04	44.98	0.009	0.442	0.020
FR1 n5	1	-9.33	25.70	16.4	0.04	43.35	0.009	0.549	0.016
FR1 n7	0	-5.62	25.70	20.1	0.10	101.86	0.020	1.000	0.020
FR1 n12	1	-7.76	25.70	17.9	0.06	62.23	0.012	0.466	0.027
FR1 n14	1	7.37	25.70	33.1	2.03	2027.68	0.404	0.525	0.768
FR1 n25/n2	0	-1.93	25.70	23.8	0.24	238.23	0.047	1.000	0.047
FR1 n2 Sub	5	-18.37	25.70	7.3	0.01	5.41	0.001	1.000	0.001
FR1 n30	0	-3.79	23.70	19.9	0.10	97.95	0.019	1.000	0.019
FR1 n38 PC3	0	-5.59	25.70	20.1	0.10	102.57	0.020	1.000	0.020



FR1 n38 PC3 Sub	5	-8.48	25.20	16.7	0.05	46.99	0.009	1.000	0.009
FR1 n41 PC3	0	-5.42	25.40	20.0	0.10	99.54	0.020	1.000	0.020
FR1 n41 PC3 Sub	5	-8.24	25.20	17.0	0.05	49.66	0.010	1.000	0.010
FR1 n41 PC2	0	-5.42	27.40	22.0	0.16	157.76	0.031	1.000	0.031
FR1 n41 PC2 Sub	5	-8.24	27.20	19.0	0.08	78.70	0.016	1.000	0.016
FR1 n48 PC3	2	-6.57	25.70	19.1	0.08	81.85	0.016	1.000	0.016
FR1 n48 PC3 Sub	5	-8.46	25.30	16.8	0.05	48.31	0.010	1.000	0.010
FR1 n66	0	-3.98	25.70	21.7	0.15	148.59	0.030	1.000	0.030
FR1 n66 Sub	5	-20.99	25.70	4.7	0.00	2.96	0.001	1.000	0.001
FR1 n71	1	-9.17	25.70	16.5	0.04	44.98	0.009	0.442	0.020
FR1 n77 PC3	2	-5.42	25.10	19.7	0.09	92.90	0.018	1.000	0.018
FR1 n77 PC2	2	-5.42	27.70	22.3	0.17	169.04	0.034	1.000	0.034
FR1 n77 Sub	5	-7.79	25.30	17.5	0.06	56.36	0.011	1.000	0.011

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			33.29	2.13	2133.04	0.425	1.000	0.425
5G NR n260			32.18	1.65	1651.96	0.329	1.000	0.329
5G NR n261			36.26	4.23	4226.69	0.841	1.000	0.841
WLAN2.4GHz Band	-4.3	26.00	21.7	0.15	147.91	0.029	1.000	0.029
WLAN5GHz/6GHz Band	-1.6	23.50	21.9	0.15	154.88	0.031	1.000	0.031
Bluetooth	-4.3	24.00	19.7	0.09	93.33	0.019	1.000	0.019
UWB			-14.0	< 0.001	0.040	< 0.001	1.000	< 0.001



<Open mode>

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	-1.90	33.50	31.6	1.45	181.97	0.036	0.549	0.066
GSM850 GPRS 2TX	0	-1.90	32.50	30.6	1.15	287.04	0.057	0.549	0.104
GSM850 GPRS 3TX	0	-1.90	31.00	29.1	0.81	304.79	0.061	0.549	0.110
GSM850 GPRS 4TX	0	-1.90	30.00	28.1	0.65	323.59	0.064	0.549	0.117
GSM850 EDGE 1TX	0	-1.90	28.00	26.1	0.41	51.29	0.010	0.549	0.019
GSM850 EDGE 2TX	0	-1.90	27.50	25.6	0.36	90.77	0.018	0.549	0.033
GSM850 EDGE 3TX	0	-1.90	27.00	25.1	0.32	121.35	0.024	0.549	0.044
GSM850 EDGE 4TX	0	-1.90	25.00	23.1	0.20	102.09	0.020	0.549	0.037
GSM1900 GSM/GPRS 1TX	2	-2.16	31.00	28.8	0.77	96.38	0.019	1.000	0.019
GSM1900 GPRS 2TX	2	-2.16	29.50	27.3	0.54	135.50	0.027	1.000	0.027
GSM1900 GPRS 3TX	2	-2.16	28.50	26.3	0.43	161.44	0.032	1.000	0.032
GSM1900 GPRS 4TX	2	-2.16	27.50	25.3	0.34	171.40	0.034	1.000	0.034
GSM1900 EDGE 1TX	2	-2.16	26.00	23.8	0.24	30.48	0.006	1.000	0.006
GSM1900 EDGE 2TX	2	-2.16	25.00	22.8	0.19	48.08	0.010	1.000	0.010
GSM1900 EDGE 3TX	2	-2.16	24.50	22.3	0.17	64.27	0.013	1.000	0.013
GSM1900 EDGE 4TX	2	-2.16	23.50	21.3	0.14	68.07	0.014	1.000	0.014
WCDMA B2	2	-2.16	25.20	23.0	0.20	201.37	0.040	1.000	0.040
WCDMA B4	2	-0.02	25.70	25.7	0.37	369.83	0.074	1.000	0.074
WCDMA B5	0	-1.90	25.00	23.1	0.20	204.17	0.041	0.549	0.074
LTE B2 Sub	1	-3.46	25.70	22.2	0.17	167.49	0.033	1.000	0.033
LTE B7	2	0.32	25.70	26.0	0.40	399.94	0.080	1.000	0.080
LTE B12/B17	0	-1.02	25.70	24.7	0.29	293.76	0.058	0.466	0.125
LTE B13	0	-1.38	25.70	24.3	0.27	270.40	0.054	0.518	0.104
LTE B14	0	-2.49	25.70	23.2	0.21	209.41	0.042	0.525	0.079
LTE B25/B2	2	-2.13	25.70	23.6	0.23	227.51	0.045	1.000	0.045
LTE B26/B5	0	-1.90	25.70	23.8	0.24	239.88	0.048	0.543	0.088
LTE B30	2	-0.10	23.70	23.6	0.23	229.09	0.046	1.000	0.046
LTEB38 PC3	2	0.90	25.70	26.6	0.46	457.09	0.091	1.000	0.091
LTE B38 PC2	2	0.90	27.40	28.3	0.68	676.08	0.135	1.000	0.135
LTE B41 PC3	2	0.84	25.40	26.2	0.42	420.73	0.084	1.000	0.084
LTE B41 PC2	2	0.84	27.40	28.2	0.67	666.81	0.133	1.000	0.133
LTE B48 PC3	6	-3.04	25.70	22.7	0.18	184.50	0.037	1.000	0.037
LTE B66/B4	2	0.05	25.70	25.8	0.38	375.84	0.075	1.000	0.075
LTE B66/B4 Sub	1	-7.58	25.70	18.1	0.06	64.86	0.013	1.000	0.013
LTE B71	0	-0.04	25.70	25.7	0.37	368.13	0.073	0.442	0.166
FR1 n5	0	-1.90	25.70	23.8	0.24	239.88	0.048	0.549	0.087
FR1 n7	2	0.32	25.70	26.0	0.40	399.94	0.080	1.000	0.080
FR1 n12	0	-1.02	25.70	24.7	0.29	293.76	0.058	0.466	0.125
FR1 n14	0	-2.49	25.70	23.2	0.21	209.41	0.042	0.525	0.079
FR1 n25/n2	2	-2.13	25.70	23.6	0.23	227.51	0.045	1.000	0.045
FR1 n2 Sub	1	-3.46	25.70	22.2	0.17	167.49	0.033	1.000	0.033
FR1 n30	2	-0.10	23.70	23.6	0.23	229.09	0.046	1.000	0.046
FR1 n38 PC3	2	0.90	25.70	26.6	0.46	457.09	0.091	1.000	0.091
FR1 n38 PC3 Sub	1	-1.66	25.20	23.5	0.23	225.94	0.045	1.000	0.045
FR1 n41 PC3	2	0.84	25.40	26.2	0.42	420.73	0.084	1.000	0.084
FR1 n41 PC3 Sub	1	-1.48	25.20	23.7	0.24	235.50	0.047	1.000	0.047
FR1 n41 PC2	2	0.84	27.40	28.2	0.67	666.81	0.133	1.000	0.133
FR1 n41 PC2 Sub	1	-1.48	27.20	25.7	0.37	373.25	0.074	1.000	0.074
FR1 n48 PC3	6	-3.04	25.70	22.7	0.18	184.50	0.037	1.000	0.037
FR1 n48 PC3 Sub	1	-7.35	25.30	18.0	0.06	62.37	0.012	1.000	0.012
FR1 n66	2	0.05	25.70	25.8	0.38	375.84	0.075	1.000	0.075
FR1 n66 Sub	1	-7.58	25.70	18.1	0.06	64.86	0.013	1.000	0.013



FCC RF EXPOSURE REPORT

Report No. : FA262403-04A

FR1 n71	0	-0.04	25.70	25.7	0.37	368.13	0.073	0.442	0.166
FR1 n77 PC3	6	-2.80	25.10	22.3	0.17	169.82	0.034	1.000	0.034
FR1 n77 PC2	6	-2.80	27.10	24.3	0.27	269.15	0.054	1.000	0.054
FR1 n77 Sub	1	-4.69	25.30	20.6	0.12	115.08	0.023	1.000	0.023

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	-5.40	33.50	28.1	0.65	81.28	0.016	0.549	0.029
GSM850 GPRS 2TX	1	-5.40	32.50	27.1	0.51	128.22	0.026	0.549	0.046
GSM850 GPRS 3TX	1	-5.40	31.00	25.6	0.36	136.14	0.027	0.549	0.049
GSM850 GPRS 4TX	1	-5.40	30.00	24.6	0.29	144.54	0.029	0.549	0.052
GSM850 EDGE 1TX	1	-5.40	28.00	22.6	0.18	22.91	0.005	0.549	0.008
GSM850 EDGE 2TX	1	-5.40	27.50	22.1	0.16	40.55	0.008	0.549	0.015
GSM850 EDGE 3TX	1	-5.40	27.00	21.6	0.14	54.20	0.011	0.549	0.020
GSM850 EDGE 4TX	1	-5.40	25.00	19.6	0.09	45.60	0.009	0.549	0.017
GSM1900 GSM/GPRS 1TX	0	-2.16	31.00	28.8	0.77	96.38	0.019	1.000	0.019
GSM1900 GPRS 2TX	0	-2.16	29.50	27.3	0.54	135.50	0.027	1.000	0.027
GSM1900 GPRS 3TX	0	-2.16	28.50	26.3	0.43	161.44	0.032	1.000	0.032
GSM1900 GPRS 4TX	0	-2.16	27.50	25.3	0.34	171.40	0.034	1.000	0.034
GSM1900 EDGE 1TX	0	-2.16	26.00	23.8	0.24	30.48	0.006	1.000	0.006
GSM1900 EDGE 2TX	0	-2.16	25.00	22.8	0.19	48.08	0.010	1.000	0.010
GSM1900 EDGE 3TX	0	-2.16	24.50	22.3	0.17	64.27	0.013	1.000	0.013
GSM1900 EDGE 4TX	0	-2.16	23.50	21.3	0.14	68.07	0.014	1.000	0.014
WCDMA B2	0	-2.16	25.20	23.0	0.20	201.37	0.040	1.000	0.040
WCDMA B4	0	-1.88	25.70	23.8	0.24	240.99	0.048	1.000	0.048
WCDMA B5	1	-5.40	25.00	19.6	0.09	91.20	0.018	0.549	0.033
LTE B2 Sub	5	-14.76	25.70	10.9	0.01	12.42	0.002	1.000	0.002
LTE B7	0	-0.66	25.70	25.0	0.32	319.15	0.064	1.000	0.064
LTE B12/B17	1	-5.60	25.70	20.1	0.10	102.33	0.020	0.466	0.044
LTE B13	1	-5.36	25.70	20.3	0.11	108.14	0.022	0.518	0.042
LTE B14	1	-5.48	25.70	20.2	0.11	105.20	0.021	0.525	0.040
LTE B25/B2	0	-2.15	25.70	23.6	0.23	226.46	0.045	1.000	0.045
LTE B26/B5	1	-5.40	25.70	20.3	0.11	107.15	0.021	0.543	0.039
LTE B30	0	-2.43	23.70	21.3	0.13	133.97	0.027	1.000	0.027
LTEB38 PC3	0	-1.49	25.70	24.2	0.26	263.63	0.052	1.000	0.052
LTE B38 PC2	0	-1.49	27.40	25.9	0.39	389.94	0.078	1.000	0.078
LTE B41 PC3	0	-0.44	25.40	25.0	0.31	313.33	0.062	1.000	0.062
LTE B41 PC2	0	-0.44	27.40	27.0	0.50	496.59	0.099	1.000	0.099
LTE B48 PC3	2	-3.31	25.20	21.9	0.15	154.53	0.031	1.000	0.031
LTE B66/B4	0	-1.78	25.70	23.9	0.25	246.60	0.049	1.000	0.049
LTE B66/B4 Sub	5	-18.82	25.70	6.9	0.00	4.88	0.001	1.000	0.001
LTE B71	1	-4.51	25.70	21.2	0.13	131.52	0.026	0.442	0.059
FR1 n5	1	-5.40	25.70	20.3	0.11	107.15	0.021	0.549	0.039
FR1 n7	0	-0.66	25.70	25.0	0.32	319.15	0.064	1.000	0.064
FR1 n12	1	-5.60	25.70	20.1	0.10	102.33	0.020	0.466	0.044
FR1 n14	1	-5.48	25.70	20.2	0.11	105.20	0.021	0.525	0.040
FR1 n25/n2	0	-2.15	25.70	23.6	0.23	226.46	0.045	1.000	0.045
FR1 n2 Sub	5	-14.76	25.70	10.9	0.01	12.42	0.002	1.000	0.002
FR1 n30	0	-2.43	23.70	21.3	0.13	133.97	0.027	1.000	0.027
FR1 n38 PC3	0	-1.49	25.70	24.2	0.26	263.63	0.052	1.000	0.052
FR1 n38 PC3 Sub	5	-8.58	25.20	16.6	0.05	45.92	0.009	1.000	0.009
FR1 n41 PC3	0	-0.44	25.40	25.0	0.31	313.33	0.062	1.000	0.062
FR1 n41 PC3 Sub	5	-7.66	25.20	17.5	0.06	56.75	0.011	1.000	0.011
FR1 n41 PC2	0	-0.44	27.40	27.0	0.50	496.59	0.099	1.000	0.099
FR1 n41 PC2 Sub	5	-7.66	27.20	19.5	0.09	89.95	0.018	1.000	0.018



FR1 n48 PC3	2	-3.31	25.70	22.4	0.17	173.38	0.035	1.000	0.035
FR1 n48 PC3 Sub	5	-10.76	25.30	14.5	0.03	28.44	0.006	1.000	0.006
FR1 n66	0	-1.78	25.70	23.9	0.25	246.60	0.049	1.000	0.049
FR1 n66 Sub	5	-18.82	25.70	6.9	0.00	4.88	0.001	1.000	0.001
FR1 n71	1	-4.51	25.70	21.2	0.13	131.52	0.026	0.442	0.059
FR1 n77 PC3	2	-2.46	25.10	22.6	0.18	183.65	0.037	1.000	0.037
FR1 n77 PC2	2	-2.46	27.70	25.2	0.33	334.20	0.067	1.000	0.067
FR1 n77 Sub	5	-8.39	25.30	16.9	0.05	49.09	0.010	1.000	0.010

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			33.29	2.13	2133.04	0.425	1.000	0.425
5G NR n260			32.18	1.65	1651.96	0.329	1.000	0.329
5G NR n261			36.26	4.23	4226.69	0.841	1.000	0.841
WLAN2.4GHz Band	-2.1	26.00	23.9	0.25	245.47	0.049	1.000	0.049
WLAN5GHz/6GHz Band	1.4	23.50	24.9	0.31	309.03	0.062	1.000	0.062
Bluetooth	-2.1	24.00	21.9	0.15	154.88	0.031	1.000	0.031
UWB			-14.0	< 0.001	0.040	< 0.001	1.000	< 0.001



<Closed mode>

WWAN Power Density / Limit	2.4GHz WLAN Power Density / Limit	5GHz/6GHz WLAN Power Density / Limit	UWB	Σ (Power Density / Limit)
0.841	0.029	0.031	0.001	0.902
WWAN Power Density / Limit	5GHz/6GHz WLAN Power Density / Limit	Bluetooth Power Density / Limit	UWB	Σ (Power Density / Limit)
0.841	0.031	0.019	0.001	0.892

<Open mode>

WWAN Power Density / Limit	2.4GHz WLAN Power Density / Limit	5GHz/6GHz WLAN Power Density / Limit	UWB	Σ (Power Density / Limit)
0.841	0.049	0.062	0.001	0.953
WWAN Power Density / Limit	5GHz/6GHz WLAN Power Density / Limit	Bluetooth Power Density / Limit	UWB	Σ (Power Density / Limit)
0.841	0.062	0.031	0.001	0.935

Note:

- Above power density calculation selected highest output power and antenna from all transmit antenna to be evaluation.
- In simultaneous transmission for this device, 5G NR including uplink MIMO and LTE transmission are managed and controlled by Samsung S.LSI TAS, while the RF exposure from WLAN, BT and UWB radios are managed using legacy approach, therefore simultaneous transmission compliance can be assessed on LTE+WLAN+UWB+BT or NR+WLAN+UWB+BT, above power density calculation selected highest power density between LTE and 5G NR for simultaneous transmission analysis with other transmitters.
- The WiFi exposure ratio is calculated from the combined power from MIMO mode and the highest gain from transmitting antennas.
- For collocation analysis, the highest (power density/limit) among all WWAN wireless modes is chosen for summation.
- 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.
- 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.