

## Maximum Permissible Exposure Report

### 1. Product Information

EUT	: Total station
Test Model	: NAVI STATION
Additional Model No.	: ARC 10, RNS, N1, NTS-552R8, NTS-552R15, NTS-552R20, NTS-562R8, NTS-562R15, NTS-562R20, NTS-572R8, NTS-572R15, NTS-572R20, NTS-582R8, NTS-582R15, NTS-582R20, KTS-552R8, KTS-552R15, KTS-552R20, KTS-562R8, KTS-562R15, KTS-562R20, KTS-572R8, KTS-572R15, KTS-572R20, KTS-582R8, KTS-582R15, KTS-582R20, STS-552R8, STS-552R15, STS-552R20, STS-562R8, STS-562R15, STS-562R20, STS-572R8, STS-572R15, STS-572R20, STS-582R8, STS-582R15, STS-582R20, RTS-562R8, RTS-562R15, RTS-562R20, RTS-572R8, RTS-572R15, RTS-572R20, RTS-582R8, RTS-582R15, RTS-582R20, CTS-552R8, CTS-552R15, CTS-552R20, CTS-562R8, CTS-562R15, CTS-562R20, CTS-572R8, CTS-572R15, CTS-572R20, CTS-582R8, CTS-582R15, CTS-582R20
Model Declaration	: PCB board, structure and internal of these model(s) are the same, So no additional models were tested.
Power Supply	: DC 7.4V by Rechargeable Li-polymer Battery (3100mAh)
Hardware Version	: CT_MB_REV.B 8400170FAB0
Software Version	: 1.00.200410.CT5002

#### Bluetooth

Frequency Range	: 2402MHz-2480MHz
Bluetooth Version	: V5.0
Bluetooth Channel Number	: 79 channels for Bluetooth V5.0 (BT Classics) 40 channels for Bluetooth V5.0 (BT LE)
Bluetooth Channel Spacing	: 1MHz for Bluetooth V5.0 (BT Classics) 2MHz for Bluetooth V5.0 (BT LE)
Bluetooth Modulation Type	: GFSK, $\pi/4$ -DQPSK, 8-DPSK for Bluetooth V5.0 (BT Classics) GFSK for Bluetooth V5.0 (BT LE)

#### 2.4G WLAN

Frequency Range	: 2412 – 2462 MHz
Channel Number	: 11 Channels for 20MHz bandwidth (2412~2462MHz) 9 Channels for 40MHz bandwidth (2422~2452MHz)
Channel Spacing	: 5MHz
Modulation Type	: IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK)

#### WiFi(5.2G Band)

Frequency Range	: 5180MHz-5240MHz
Channel Number	: 4 channels for 20MHz bandwidth(5180MHz-5240MHz) 2 channels for 40MHz bandwidth(5190MHz~5230MHz) 1 channels for 80MHz bandwidth(5210MHz)
Modulation Type	: IEEE 802.11a/n/ac: OFDM(64QAM, 16QAM, QPSK, BPSK)

#### WiFi(5.8G Band)

Frequency Range	: 5745MHz-5825MHz
Channel Number	: 5 channels for 20MHz bandwidth(5745MHz-5825MHz) 2 channels for 40MHz bandwidth(5755MHz~5795MHz) 1 channels for 80MHz bandwidth(5775MHz)
Modulation Type	: IEEE 802.11a/n/ac: OFDM(64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: PIFA Antenna,3.0dBi(Max.) for BT and WIFI.

<b>GSM</b>	:
GSM/EDGE/GPRS Operation Frequency Band	: GSM850/PCS1900/GPRS850/GPRS1900/EDGE850/EDGE1900
GSM/EDGE/GPRS	: Supported GSM/GPRS/EDGE
GSM Release Version	: R99
GSM/EDGE/GPRS Power Class	: GSM850:Power Class 5/ PCS1900:Power Class 0
GPRS/EDGE Multislot Class	: GPRS/EDGE: Multi-slot Class 12
GPRS operation mode	: Class B
Modulation Type	: GMSK for GSM/GPRS, 8-PSK for EDGE
Antenna Gain	: PIFA Antenna,3.0dBi(Max.) For GSM 850; 3.0dBi(Max.) For PCS 1900
<b>WCDMA</b>	:
UMTS Operation Frequency Band	: UMTS FDD Band I/ II/ V/ VIII
WCDMA Release Version	: R8
DC-HSUPA Release Version	: Not Supported
Modulation Type	: BPSK for UMTS
Antenna Gain	: PIFA Antenna,3.0dBi (max.) For WCDMA Band II; 3.0dBi (max.) For WCDMA Band V;
<b>LTE</b>	:
LTE Operation Frequency Band	: LTE Band 7 , 41
LTE Release Version	: Release 9
LTE/UMTS Power Class	: Class 3
Modulation Type	: QPSK, 16QAM for LTE
Antenna Gain	: PIFA Antenna, 3.0dBi (max.) for LTE Band 7; 3.0dBi (max.) for LTE Band 41;
GPS function	: Support and only RX
FM function	: Support and only RX
PMR(410.125~469.625MHz)	: Support and only RX
Exposure category	: General population/uncontrolled environment
EUT Type	: Production Unit
Device Type	: Mobile Device

## 2. Evaluation Method

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modelled or measured field strengths or power density, is  $\leq 1.0$ . The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

### 3. Limit

#### 3.1 Refer Evaluation Method

[ANSI C95.1-1999](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

[FCC CFR 47 part2 2.1091](#): Radiofrequency radiation exposure evaluation: mobile devices

#### 3.2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
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

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 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

F=frequency in MHz

\*=Plane-wave equivalent power density

#### 4. MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

#### 5. Antenna Information

ES-D4 can only use antennas certificated as follows provided by manufacturer;

Internal Identification	Antenna type and antenna number	Operate frequency band	Maximum antenna gain	Notes
Antenna 0	PIFA Antenna	2000 MHz – 2500 MHz 5GHz-6GHz	3.0 dBi	BT/ WLAN Antenna
Antenna 1	PIFA Antenna	600 MHz – 3000 MHz	3.0 dBi	GSM/WCDMA/LTE Antenna

## 6. Conducted Power

[BT Max Conducted Power]

Mode	Channel	Frequency(MHz)	Max Conducted Power (dBm)
GFSK	0	2402	2.805
	39	2441	2.260
	78	2480	2.537
$\pi/4$ DQPSK	0	2402	2.159
	39	2441	1.506
	78	2480	1.911
8DPSK	0	2402	2.146
	39	2441	1.437
	78	2480	1.831

[2.4GWLAN Max Conducted Power]

Mode	Channel	Frequency(MHz)	Max Conducted Power (dBm)
IEEE 802.11b	1	2412	11.97
	6	2437	11.1
	11	2462	10.76
IEEE 802.11g	1	2412	11.59
	6	2437	11.7
	11	2462	11.1
IEEE 802.11n HT20	1	2412	10.64
	6	2437	10.73
	11	2462	10.35
IEEE 802.11n HT40	3	2422	11.42
	6	2437	11.39
	9	2452	11.29

&lt;WLAN 5.2GHz Conducted Power&gt;

Mode	Channel	Frequency (MHz)	Conducted Output Power(dBm)
802.11a	36	5180	10.45
	40	5200	9.3
	48	5240	9.78
802.11n(20MHz)	36	5180	9.2
	40	5200	9.89
	48	5240	9.72
802.11n(40MHz)	38	5190	9.73
	46	5230	10.07
802.11ac(20MHz)	36	5180	9.78
	40	5200	9.82
	48	5240	9.59
802.11ac(40MHz)	38	5190	9.38
	46	5230	9.81
802.11ac(80MHz)	42	5210	9.06

## &lt;WLAN 5.8GHz Conducted Power&gt;

Mode	Channel	Frequency (MHz)	Conducted Output Power(dBm)
802.11a	149	5745	9.94
	157	5785	9.34
	165	5825	9.23
802.11n(20MHz)	149	5745	9.54
	157	5785	8.89
	165	5825	9.4
802.11n(40MHz)	151	5755	9.95
	159	5795	9.66
802.11ac(20MHz)	149	5745	9.78
	157	5785	9.82
	165	5825	9.59
802.11ac(40MHz)	151	5755	9.38
	159	5795	9.81
802.11ac(80MHz)	155	5775	10.66

## [GSM Max Average Power]

Test Mode	Channel	Frequency (MHz)	Max Average Power (dBm)
GSM 850	Low	824.2	32.70
	Middle	836.6	32.70
	High	848.8	32.67
GSM 1900	Low	1850.2	29.68
	Middle	1880.0	29.69
	High	1909.8	29.63

## [WCDMA Max Average Power]

Test Mode	Channel	Frequency (MHz)	Max Average Power (dBm)
WCDMA Band II	Low	1852.4	23.46
	Middle	1880	23.66
	High	1907.6	23.53
WCDMA Band V	Low	826.4	23.55
	Middle	836.4	23.62
	High	846.6	23.49

[LTE Max Average Power]

Test Mode		Channel	Frequency (MHz)	Max Average Power (dBm)
LTE	Band 7	LCH	2510	23.65
		MCH	2535	24.32
		HCH	2560	23.66
	Band 41	LCH	2506	23.12
		MCH	2593	22.84
		HCH	2680	22.99

## 7. Manufacturing Tolerance

[BT Max Conducted Power]

Test Mode	Channel	Max Conducted Power (dBm)	ANT Max. Tune Up Power (dBm)
GFSK	LCH	2.805	2.0±1.0
	MCH	2.260	2.0±1.0
	HCH	2.537	2.0±1.0
π/4DQPSK	LCH	2.159	2.0±1.0
	MCH	1.506	1.0±1.0
	HCH	1.911	1.0±1.0
8DPSK	LCH	2.146	2.0±1.0
	MCH	1.437	1.0±1.0
	HCH	1.831	1.0±1.0

[2.4GWLAN Max Conducted Power]

Test Mode	Channel	Max Conducted Power (dBm)	ANT Max. Tune Up Power (dBm)
IEEE 802.11b	LCH	11.97	11.0±1.0
	MCH	11.1	11.0±1.0
	HCH	10.76	10.0±1.0
IEEE 802.11g	LCH	11.59	11.0±1.0
	MCH	11.7	11.0±1.0
	HCH	11.1	11.0±1.0
IEEE 802.11n HT20	LCH	10.64	10.0±1.0
	MCH	10.73	10.0±1.0
	HCH	10.35	10.0±1.0
IEEE 802.11n HT40	LCH	11.42	11.0±1.0
	MCH	11.39	11.0±1.0
	HCH	11.29	11.0±1.0

## [5.2GWLAN Max Conducted Power]

Test Mode	Channel	Max Conducted Power (dBm)	ANT Max. Tune Up Power (dBm)
IEEE 802.11a	LCH	10.45	10.0±1.0
	MCH	9.3	9.0±1.0
	HCH	9.78	9.0±1.0
802.11n(20MHz)	LCH	9.2	9.0±1.0
	MCH	9.89	9.0±1.0
	HCH	9.72	9.0±1.0
802.11n(40MHz)	LCH	9.73	9.0±1.0
	HCH	10.07	10.0±1.0
802.11ac(20MHz)	LCH	9.78	9.0±1.0
	MCH	9.82	9.0±1.0
	HCH	9.59	9.0±1.0
802.11ac(40MHz)	LCH	9.38	9.0±1.0
	HCH	9.81	9.0±1.0
802.11ac(80MHz)	MCH	9.06	9.0±1.0

## [5.8GWLAN Max Conducted Power]

Test Mode	Channel	Max Conducted Power (dBm)	ANT Max. Tune Up Power (dBm)
IEEE 802.11a	LCH	9.94	9.0±1.0
	MCH	9.34	9.0±1.0
	HCH	9.23	9.0±1.0
802.11n(20MHz)	LCH	9.54	9.0±1.0
	MCH	8.89	8.0±1.0
	HCH	9.4	9.0±1.0
802.11n(40MHz)	LCH	9.95	9.0±1.0
	HCH	9.66	9.0±1.0
802.11ac(20MHz)	LCH	9.78	9.0±1.0
	MCH	9.82	9.0±1.0
	HCH	9.59	9.0±1.0
802.11ac(40MHz)	LCH	9.38	9.0±1.0
	HCH	9.81	9.0±1.0
802.11ac(80MHz)	MCH	10.66	10.0±1.0

## [GSM Max Average Power]

Test Mode	Channel	Max Average Power (dBm)	ANT Max. Tune Up Power (dBm)
GSM 850	LCH	32.70	32.0±1.0
	MCH	32.70	32.0±1.0
	HCH	32.67	32.0±1.0
GSM 1900	LCH	29.68	29.0±1.0
	MCH	29.69	29.0±1.0
	HCH	29.63	29.0±1.0

## [WCDMA Max Average Power]

Test Mode	Channel	Max Average Power (dBm)	ANT Max. Tune Up Power (dBm)	
WCDMA	Band II	LCH	23.46	23.0±1.0
		MCH	23.66	23.0±1.0
		HCH	23.53	23.0±1.0
	Band V	LCH	23.55	23.0±1.0
		MCH	23.62	23.0±1.0
		HCH	23.49	23.0±1.0

## &lt;LTE Max Average Power&gt;

Test Mode		Channel	Max Average Power (dBm)	ANT Max. Tune Up Power (dBm)
LTE	Band 7	LCH	23.65	23.0±1.0
		MCH	24.32	24.0±1.0
		HCH	23.66	23.0±1.0
	Band 41	LCH	23.12	23.0±1.0
		MCH	22.84	22.0±1.0
		HCH	22.99	22.0±1.0

## 8. Measurement Results

### 8.1 Standalone MPE Evaluation

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance,  $r = 20\text{cm}$ , as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

[Antenna 0]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
GFSK	3.00	1.9953	3.0000	1.9953	0.0008	1.0000
$\pi/4$ DQPSK	3.00	1.9953	3.0000	1.9953	0.0008	1.0000
8DPSK	3.00	1.9953	3.0000	1.9953	0.0008	1.0000
2.4GWiFi (IEEE 802.11b)	12.00	15.8489	3.0000	1.9953	0.0063	1.0000
2.4GWiFi (IEEE 802.11g)	12.00	15.8489	3.0000	1.9953	0.0063	1.0000
2.4GWiFi (IEEE 802.11n HT20)	11.00	12.5893	3.0000	1.9953	0.0050	1.0000
2.4GWiFi (IEEE 802.11n HT40)	12.00	15.8489	3.0000	1.9953	0.0063	1.0000
5.2GWiFi (IEEE 802.11a)	11.00	12.5893	3.0000	1.9953	0.0050	1.0000
5.2GWiFi (IEEE 802.11n20)	10.00	10.0000	3.0000	1.9953	0.0040	1.0000
5.2GWiFi (IEEE 802.11n40)	11.00	12.5893	3.0000	1.9953	0.0050	1.0000
5.2GWiFi (IEEE 802.11ac20)	10.00	10.0000	3.0000	1.9953	0.0040	1.0000
5.2GWiFi (IEEE 802.11ac40)	10.00	10.0000	3.0000	1.9953	0.0040	1.0000
5.2GWiFi (IEEE 802.11ac80)	10.00	10.0000	3.0000	1.9953	0.0040	1.0000
5.8GWiFi (IEEE 802.11a)	10.00	10.0000	3.0000	1.9953	0.0040	1.0000
5.8GWiFi (IEEE 802.11n20)	10.00	10.0000	3.0000	1.9953	0.0040	1.0000
5.8GWiFi (IEEE 802.11n40)	10.00	10.0000	3.0000	1.9953	0.0040	1.0000
5.8GWiFi (IEEE 802.11ac20)	10.00	10.0000	3.0000	1.9953	0.0040	1.0000
5.8GWiFi (IEEE 802.11ac40)	10.00	10.0000	3.0000	1.9953	0.0040	1.0000
5.8GWiFi (IEEE 802.11ac80)	11.00	12.5893	3.0000	1.9953	0.0050	1.0000



[Antenna 1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
GSM 850	33.00	1995.2623	3.0000	1.9953	0.7920	1.0000
GSM 1900	30.00	1000.0000	3.0000	1.9953	0.3969	1.0000
WCDMA Band II	24.00	251.1886	3.0000	1.9953	0.0997	0.5493
WCDMA Band V	24.00	251.1886	3.0000	1.9953	0.0997	0.4660
LTE Band 7	25.00	316.2278	3.0000	1.9953	0.1255	1.0000
LTE Band 41	24.00	251.1886	3.0000	1.9953	0.0997	1.0000

Remark:

1. Output power including turn-up tolerance;
2. Output power is burst average power;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer;
4. MPE values =  $PG/4\pi R^2$

## 8.2 Simultaneous Transmission MPE

The sample support one BT&2.4G WLAN and another one LTE&WCDMA&GSM transmit antenna, so need consider simultaneous transmission;

Simultaneous transmission MPE

According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;

$\sum \sum$  of MPE ratios  $\leq 1.0$

BT+GSM			
Mode	$\sum$ MPE ratios	Limit	Results
GFSK+GSM850	0.7928	1.000	Pass
GFSK+GSM1900	0.3977	1.000	Pass
$\pi/4$ DQPSK+GSM850	0.7928	1.000	Pass
$\pi/4$ DQPSK+GSM1900	0.3977	1.000	Pass
8DPSK+GSM850	0.7928	1.000	Pass
8DPSK+GSM1900	0.3977	1.000	Pass

BT+WCDMA			
Mode	$\sum$ MPE ratios	Limit	Results
GFSK+ WCDMA Band II	0.1005	1.000	Pass
GFSK+ WCDMA Band IV	0.1005	1.000	Pass
$\pi/4$ DQPSK+ WCDMA Band II	0.1005	1.000	Pass
$\pi/4$ DQPSK+ WCDMA Band IV	0.1005	1.000	Pass
8DPSK+ WCDMA Band II	0.1005	1.000	Pass
8DPSK+ WCDMA Band IV	0.1005	1.000	Pass

BT+LTE			
Mode	$\sum$ MPE ratios	Limit	Results
GFSK+ LTE Band 7	0.1263	1.000	Pass
GFSK+ LTE Band 41	0.1005	1.000	Pass
$\pi/4$ DQPSK+ LTE Band 7	0.1263	1.000	Pass
$\pi/4$ DQPSK+ LTE Band 41	0.1005	1.000	Pass
8DPSK+ LTE Band 7	0.1263	1.000	Pass
8DPSK+ LTE Band 41	0.1005	1.000	Pass

2.4G WLAN+GSM			
Mode	$\sum$ MPE ratios	Limit	Results
IEEE 802.11b +GSM850	0.7983	1.000	Pass
IEEE 802.11b +GSM1900	0.4032	1.000	Pass
IEEE 802.11g +GSM850	0.7983	1.000	Pass
IEEE 802.11g +GSM1900	0.4032	1.000	Pass
IEEE 802.11n20+GSM850	0.7970	1.000	Pass
IEEE 802.11n20+GSM1900	0.4019	1.000	Pass
IEEE 802.11n40+GSM850	0.7983	1.000	Pass
IEEE 802.11n40+GSM1900	0.4032	1.000	Pass

2.4G WLAN+WCDMA			
Mode	$\sum$ MPE ratios	Limit	Results
IEEE 802.11b + WCDMA Band II	0.1060	1.000	Pass
IEEE 802.11b + WCDMA Band V	0.1060	1.000	Pass
IEEE 802.11g + WCDMA Band II	0.1060	1.000	Pass
IEEE 802.11g + WCDMA Band V	0.1060	1.000	Pass
IEEE 802.11n20 + WCDMA Band II	0.0694	1.000	Pass
IEEE 802.11n20 + WCDMA Band V	0.0694	1.000	Pass
IEEE 802.11n40 + WCDMA Band II	0.1047	1.000	Pass
IEEE 802.11n40 + WCDMA Band V	0.1047	1.000	Pass

2.4G WLAN+LTE			
Mode	$\sum$ MPE ratios	Limit	Results
IEEE 802.11b + LTE Band 7	0.1318	1.000	Pass
IEEE 802.11b + LTE Band 41	0.1060	1.000	Pass
IEEE 802.11g + LTE Band 7	0.1318	1.000	Pass
IEEE 802.11g + LTE Band 41	0.1060	1.000	Pass
IEEE 802.11n20 + LTE Band 7	0.0694	1.000	Pass
IEEE 802.11n20 + LTE Band 41	0.0451	1.000	Pass
IEEE 802.11n40 + LTE Band 7	0.1305	1.000	Pass
IEEE 802.11n40 + LTE Band 41	0.1047	1.000	Pass

5.2G WLAN+GSM			
Mode	$\sum$ MPE ratios	Limit	Results
IEEE 802.11a +GSM850	0.7970	1.000	Pass
IEEE 802.11a +GSM1900	0.4019	1.000	Pass
IEEE 802.11n20 +GSM850	0.7960	1.000	Pass
IEEE 802.11n20 +GSM1900	0.4009	1.000	Pass
IEEE 802.11n40 +GSM850	0.7970	1.000	Pass
IEEE 802.11n40 +GSM1900	0.4019	1.000	Pass
IEEE 802.11ac20 +GSM850	0.7960	1.000	Pass
IEEE 802.11ac20 +GSM1900	0.4009	1.000	Pass
IEEE 802.11ac40 +GSM850	0.7960	1.000	Pass
IEEE 802.11ac40 +GSM1900	0.4009	1.000	Pass
IEEE 802.11ac80 +GSM850	0.7960	1.000	Pass
IEEE 802.11ac80 +GSM1900	0.4009	1.000	Pass

5.2G WLAN+WCDMA			
Mode	$\sum$ MPE ratios	Limit	Results
IEEE 802.11a + WCDMA Band II	0.1047	1.000	Pass
IEEE 802.11a + WCDMA Band V	0.1047	1.000	Pass
IEEE 802.11n20+ WCDMA Band II	0.1037	1.000	Pass
IEEE 802.11n20 + WCDMA Band V	0.1037	1.000	Pass
IEEE 802.11n40 + WCDMA Band II	0.1047	1.000	Pass
IEEE 802.11n40 + WCDMA Band V	0.1047	1.000	Pass
IEEE 802.11ac20 + WCDMA Band II	0.1037	1.000	Pass
IEEE 802.11ac20 + WCDMA Band V	0.1037	1.000	Pass
IEEE 802.11ac40 + WCDMA Band II	0.1047	1.000	Pass
IEEE 802.11ac40 + WCDMA Band V	0.1047	1.000	Pass
IEEE 802.11ac80 + WCDMA Band II	0.1047	1.000	Pass
IEEE 802.11ac80 + WCDMA Band V	0.1047	1.000	Pass

5.2G WLAN+LTE			
Mode	$\sum$ MPE ratios	Limit	Results
IEEE 802.11a + LTE Band 7	0.1305	1.000	Pass
IEEE 802.11a + LTE Band 41	0.1047	1.000	Pass
IEEE 802.11n20 + LTE Band 7	0.1295	1.000	Pass
IEEE 802.11n20 + LTE Band 41	0.1037	1.000	Pass
IEEE 802.11n40 + LTE Band 7	0.1305	1.000	Pass
IEEE 802.11n40 + LTE Band 41	0.1047	1.000	Pass
IEEE 802.11ac20 + LTE Band 7	0.1295	1.000	Pass
IEEE 802.11ac20 + LTE Band 41	0.1037	1.000	Pass
IEEE 802.11ac40 + LTE Band 7	0.1305	1.000	Pass
IEEE 802.11ac40 + LTE Band 41	0.1047	1.000	Pass
IEEE 802.11ac80 + LTE Band 7	0.1305	1.000	Pass
IEEE 802.11ac80 + LTE Band 41	0.1047	1.000	Pass

5.8G WLAN+GSM			
Mode	$\sum$ MPE ratios	Limit	Results
IEEE 802.11a +GSM850	0.7960	1.000	Pass
IEEE 802.11a +GSM1900	0.4009	1.000	Pass
IEEE 802.11n20 +GSM850	0.7960	1.000	Pass
IEEE 802.11n20 +GSM1900	0.4009	1.000	Pass
IEEE 802.11n40 +GSM850	0.7960	1.000	Pass
IEEE 802.11n40 +GSM1900	0.4009	1.000	Pass
IEEE 802.11ac20 +GSM850	0.7960	1.000	Pass
IEEE 802.11ac20 +GSM1900	0.4009	1.000	Pass
IEEE 802.11ac40 +GSM850	0.7960	1.000	Pass
IEEE 802.11ac40 +GSM1900	0.7970	1.000	Pass
IEEE 802.11ac80 +GSM850	0.4019	1.000	Pass

5.8G WLAN+WCDMA			
Mode	$\sum$ MPE ratios	Limit	Results
IEEE 802.11a + WCDMA Band II	0.1037	1.000	Pass
IEEE 802.11a + WCDMA Band V	0.1037	1.000	Pass
IEEE 802.11n20+ WCDMA Band II	0.1037	1.000	Pass
IEEE 802.11n20 + WCDMA Band V	0.1037	1.000	Pass
IEEE 802.11n40 + WCDMA Band II	0.1037	1.000	Pass
IEEE 802.11n40 + WCDMA Band V	0.1037	1.000	Pass
IEEE 802.11ac20 + WCDMA Band II	0.1037	1.000	Pass
IEEE 802.11ac20 + WCDMA Band V	0.1037	1.000	Pass
IEEE 802.11ac40 + WCDMA Band II	0.1037	1.000	Pass
IEEE 802.11ac40 + WCDMA Band V	0.1037	1.000	Pass
IEEE 802.11ac80 + WCDMA Band II	0.1047	1.000	Pass
IEEE 802.11ac80 + WCDMA Band V	0.1047	1.000	Pass

5.8G WLAN+LTE			
Mode	$\sum$ MPE ratios	Limit	Results
IEEE 802.11a + LTE Band 7	0.1295	1.000	Pass
IEEE 802.11a + LTE Band 41	0.1037	1.000	Pass
IEEE 802.11n20 + LTE Band 7	0.1295	1.000	Pass
IEEE 802.11n20 + LTE Band 41	0.1037	1.000	Pass
IEEE 802.11n40 + LTE Band 7	0.1295	1.000	Pass
IEEE 802.11n40 + LTE Band 41	0.1037	1.000	Pass
IEEE 802.11ac20 + LTE Band 7	0.1295	1.000	Pass
IEEE 802.11ac20 + LTE Band 41	0.1037	1.000	Pass
IEEE 802.11ac40 + LTE Band 7	0.1295	1.000	Pass
IEEE 802.11ac40 + LTE Band 41	0.1037	1.000	Pass
IEEE 802.11ac80 + LTE Band 7	0.1305	1.000	Pass
IEEE 802.11ac80 + LTE Band 41	0.1047	1.000	Pass

## 9. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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