RF Exposure Report

Report No.:	MFBEIP-WTW-P23060540
FCC ID:	DGI-NX-H3003
Test Model:	NX-H3003
Series Model:	NX-H3003A
Received Date:	Jun. 20, 2023
Issued Date:	2024/2/22
Applicant:	Inventec Corporation
Address:	No. 66, Hougang Street, Shilin District, Taipei City
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
MFBEIP-WTW-P23060540	Original release.	2024/2/22

1 Certificate of Conformity

Product:	Edge server
Brand:	Inventec
Test Model:	NX-H3003
Series Model:	NX-H3003A
Sample Status:	Mass product
Applicant:	Inventec Corporation
FCC Rule Part:	FCC Part 2 (Section 2.1091)
Standard:	KDB 447498 D04 Interim General RF Exposure Guidance v01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** 2024/2/22

Polly Chien / Specialist

Approved by : _____ , **Date:** 2024/2/22

Jeremy Lin / Project Engineer

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
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

f = Frequency in MHz; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$
where
Pd = power density in mW/cm^2
Pout = output power to antenna in mW
G = gain of antenna in linear scale
pi = 3.1416
r = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

3 Calculation Result of Maximum Conducted Power

WLAN (EUT contains certified WLAN module (FCC ID: PD99260NG))

Frequency Band (MHz)	Max Average Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN					
2412-2462	21.10	2.80	20	0.049	1
5180-5240	22.81	2.37	20	0.066	1
5250-5320	23.60	2.18	20	0.075	1
5500-5720	23.65	1.37	20	0.063	1
5745-5825	24.76	0.85	20	0.072	1
BT					
2402-2480	11.56	2.80	20	0.005	1
BT LE					
2402-2480	9.98	2.80	20	0.004	1

WWAN (EUT contains certified WWAN module (FCC ID: DGI-NX-H3003)

Function	Frequency Band (MHz)	Max Conducted Power (dBm)	Antenna Gain (dBi)	EIRP Power (dBm)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WCDMA Band 2	1850.7-1909.3	23.52	2.8	26.32	20	0.085	1
WCDMA Band 4	1710.7-1754.3	23.47	3.3	26.77	20	0.095	1
LTE Band 2	1850.7-1909.3	23.82	2.8	26.62	20	0.091	1
LTE Band 4	1710.7-1754.3	23.98	3.3	27.28	20	0.106	1
LTE Band 7	2502.5-2567.5	23.35	2.8	26.15	20	0.082	1
LTE Band 25	1850.7-1914.3	23.72	2.8	26.52	20	0.089	1
LTE Band 30	2307.5-2312.5	20.51	2.86	23.37	20	0.043	1
LTE Band 38	2572.5-2617.5	23.54	2.84	26.38	20	0.086	1
LTE Band 41	2547.5-2652.5	26.72	2.84	29.56	20	0.180	1
LTE Band 48 (Per 10M)	3552.5-3697.5	21.86	0.78	22.64	20	0.037	1
LTE Band 48 (Full Power)	3552.5-3697.5	22.00	0.78	22.78	20	0.038	1
LTE Band 42 (Per 10M)	3552.5-3597.5	21.64	0.81	22.45	20	0.035	1
LTE Band 42 (Full Power)	3552.5-3597.5	21.87	0.81	22.68	20	0.037	1
LTE Band 66	1710.7-1779.3	23.68	3.3	26.98	20	0.099	1
LTE Band 7C	2507.8-2560.0	23.40	2.8	26.20	20	0.083	1
LTE Band 38C	2580.0-2610.0	24.95	2.84	27.79	20	0.120	1
LTE Band 41C	2506.0-2680.0	24.92	2.84	27.76	20	0.119	1
LTE Band 48C (Per 10M)	3560.0-3690.0	21.61	0.78	22.39	20	0.034	1
LTE Band 48C (Full Power)	3560.0-3690.0	21.97	0.78	22.75	20	0.037	1
LTE Band 42C (Per 10M)	3552.5-3697.5	21.33	0.81	22.14	20	0.033	1
LTE Band 42C (Full Power)	3552.5-3697.5	21.76	0.81	22.57	20	0.036	1
LTE Band 66C	1720.0-1770.0	24.62	3.3	27.92	20	0.123	1
LTE Band 66B	1715.0-1775.0	24.36	3.3	27.66	20	0.116	1
5GNR (n38)	2580.0-2610.0	23.20	2.84	26.04	20	0.080	1
5GNR (n41)	2506.02-2679.99	25.50	2.84	28.34	20	0.136	1

Function	Frequency Band (MHz)	Max Conducted Power (dBm)	Antenna Gain (dBi)	EIRP Power (dBm)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WCDMA Band 5	826.4-846.6	23.49	1.22	24.71	20	0.059	0.551
LTE Band 5	824.7-848.3	24.18	1.22	25.40	20	0.069	0.550
LTE Band 26 (Part 22)	824.7-848.3	23.98	1.22	25.20	20	0.066	0.550
LTE Band 12	699.7-715.3	24.09	0.95	25.04	20	0.063	0.466
LTE Band 13	779.5-784.5	24.15	1.29	25.44	20	0.070	0.520
LTE Band 14	790.5-795.5	24.15	1.29	25.44	20	0.070	0.527
LTE Band 17	706.5-713.5	24.01	1.29	24.96	20	0.067	0.471
LTE Band 26 (Part 90)	814.7-823.3	24.12	1.22	25.34	20	0.068	0.543
LTE Band 71	665.5-695.5	23.71	0.77	24.48	20	0.056	0.444
LTE Band 5B	829.0-844.0	24.13	1.22	25.35	20	0.068	0.553

Function		Frequency Band (MHz)	Max Conducted Power(dBm)	Antenna Gain (dBi)	EIRP Power (dBm)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Co-located Ratio<1
ENDC n2		1852.5-1907.5	23.28	2.8	26.08	20	0.081	1	-
ENDC n2	LTE Band 5	824.7-848.3	23.38	1.22	24.60	20	0.057	0.550	0.185
	LTE Band 12	699.7-715.3	23.19	0.95	24.14	20	0.052	0.466	0.193
	LTE Band 13	779.5-784.5	23.20	1.29	24.49	20	0.056	0.520	0.189
	LTE Band 30	2307.5-2312.5	20.31	2.86	23.17	20	0.041	1	0.122
	LTE Band 48 (Per 10M)	3552.5-3697.5	21.79	0.78	22.57	20	0.036	1	0.117
	LTE Band 48 (Full Power)	3552.5-3697.5	21.79	0.78	22.57	20	0.036	1	0.117
	LTE Band 66	1710.7-1779.3	22.16	3.3	25.46	20	0.070	1	0.151
ENDC n5		826.5-846.5	23.30	1.22	24.52	20	0.056	0.551	-
ENDC n5	LTE Band 2	1850.7-1909.3	23.39	2.8	26.19	20	0.083	1	0.185
	LTE Band 7	2502.5-2567.5	23.18	2.8	25.98	20	0.079	1	0.181
	LTE Band 12	699.7-715.3	23.19	0.95	24.14	20	0.052	0.466	0.213
	LTE Band 48 (Per 10M)	3552.5-3697.5	21.79	0.78	22.57	20	0.036	1	0.138
	LTE Band 48 (Full Power)	3552.5-3697.5	21.77	0.78	22.55	20	0.036	1	0.138
	LTE Band 66	1710.7-1779.3	23.17	3.3	26.47	20	0.088	1	0.190

Function		Frequency Band (MHz)	Max Conducted Power(dBm)	Antenna Gain (dBi)	EIRP Power (dBm)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Co-located Ratio<1
ENDC n7		2507.8-2560.0	23.20	2.8	26.00	20	0.079	1	-
ENDC n7	LTE Band 5	824.7-848.3	23.40	1.22	24.62	20	0.058	0.550	0.184
	LTE Band 12	699.7-715.3	23.19	0.95	24.14	20	0.052	0.466	0.191
ENDC n12		699.7-715.3	23.30	0.95	24.25	20	0.053	0.466	-
ENDC n12	LTE Band 2	1850.7-1909.3	23.39	2.8	26.19	20	0.083	1	0.197
	LTE Band 66	1710.7-1779.3	23.20	3.3	26.50	20	0.089	1	0.203
ENDC n41 (HPUE)		2506.02-2679.99	25.90	2.84	28.74	20	0.149	1	-
ENDC n41		2506.02-2679.99	23.59	2.84	26.43	20	0.087	1	-
ENDC n41	LTE Band 2	1850.7-1909.3	23.20	2.8	26.00	20	0.079	1	0.166
	LTE Band 25	1850.7-1914.3	23.20	2.8	26.00	20	0.079	1	0.166
	LTE Band 26 (Part 22)	824.7-848.3	23.20	1.22	24.42	20	0.055	0.550	0.187
	LTE Band 26 (Part 90)	814.7-823.3	23.20	1.22	24.42	20	0.055	0.543	0.188
	LTE Band 41 (HPUE)	2498.5-2687.5	25.49	2.84	28.33	20	0.135	1	0.222
	LTE Band 41	2498.5-2687.5	22.90	2.84	25.74	20	0.075	1	0.075
	LTE Band 66	1710.7-1779.3	23.19	3.3	26.49	20	0.089	1	0.175
ENDC n66		1712.5-1777.9	23.40	3.3	26.70	20	0.093	1	-
ENDC n66	LTE Band 5	824.7-848.3	23.20	1.22	24.42	20	0.055	0.550	0.193
	LTE Band 12	699.7-715.3	23.20	0.95	24.15	20	0.052	0.466	0.205
	LTE Band 13	779.5-784.5	23.19	1.29	24.48	20	0.056	0.520	0.201
	LTE Band 71	665.5-695.5	23.20	0.77	23.97	20	0.050	0.444	0.206
	LTE Band 30	2307.5-2312.5	20.21	2.86	23.07	20	0.040	1	0.133
	LTE Band 48 (Per 10M)	3552.5-3697.5	21.80	0.78	22.58	20	0.036	1	0.129
	LTE Band 48 (Full Power)	3552.5-3697.5	21.79	0.78	22.57	20	0.036	1	0.129
ENDC n71		665.5-695.5	23.19	0.77	23.96	20	0.050	0.444	-
ENDC n71	LTE Band 2	1850.7-1909.3	23.40	2.8	26.20	20	0.083	1	0.196
	LTE Band 7	2502.5-2567.5	23.15	2.8	25.95	20	0.078	1	0.191
	LTE Band 66	1710.7-1779.3	23.20	3.3	26.50	20	0.089	1	0.202

Note:
1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. EIRP = Cond Power + Antenna Gain
3. The above Max Power is Tune-up Power which client declared.
4. Detail antenna specification please refer to antenna datasheet an antenna gain measurement report.

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

The simultaneous operation mode was determined by client.

1. WLAN 2.4G + WWAN = 0.049 /1+0.180 /1=0.229
2. WLAN 5G + WWAN + BT = 0.075 /1+0.180 /1+0.005/1=0.260

Therefore, the maximum calculations of above situations are less than the “1” limit.

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