Additional MPE Calculation (for Mobile Device)

FCC ID: NKR-DNXAG1
Company: Wistron Corporation
Model: DNXA-G1-P1

The WiFi module in this filing is applied in LANCOM host, model LN-830E with equal or lower gain antennas than originally filed under this respective FCC ID. The following Antenna is applied:

Antenna brand: LANCOM
Antenna model: Part No. 2246449-X Rev 1, with netto maximum gain of 3.5 dBi @ 2.4 GHz and 0 dBi @ 5 GHz.
Antenna type: Puck

Typical use distance: d ≥ 20 cm
Power density limit for mobile devices at 2.4 and 5 GHz: S ≤ 1 mW/cm^2
The Average aggregate power is taken to calculate with, wheras the worst case operation mode generating the highest power in each frequency range is taken for calculation.

POWER DENSITY $S = (P_{radiated}) / (4\pi \times d^2) =$..... mW/cm^2

MODULATION MODE	FREQUENCY BAND (MHz)	MAX POWER (dBm)	MAX ANTENNA GAIN (dBi)	Total EIRP (dBm)	DISTANCE d (cm)	POWER DENSITY (mW/cm^2)	LIMIT (mW/cm^2)
802.11b	2412-2462	20.75	3.5	24.25	20	0.053	1
802.11g	2412-2462	20.48	3.5	23.98	20	**0.050**	1
802.11n(20)	2412-2462	21.79	3.5	25.29	20	0.067	1
802.11n(40)	2422-2452	17.37	3.5	20.87	20	0.024	1
802.11a	5180-5240	18.40	0	18.40	20	**0.014**	1
802.11n(20)	5180-5240	18.54	0	18.54	20	0.014	1
802.11n(40)	5190-5230	17.64	0	17.64	20	0.012	1

Evaluation for LN-830 host:

L-830E is equipped with one WLAN module as certified under this FCC ID: NKR-DNXAG1, toghther with antoher WLAN module with FCC ID: U4Y-DAXAO1 and BLE+ESL module with FCC ID: U4Y-ESLREVC2. The WiFi modules can not (never) use the same channel number, which is fixed in the software by the manufacturer, end users cannot change this either. The BLE+ESL module have significant lower power. All radios can transmit simultaneously. In the table below, we take worst case, and sum all powers and power densities:

Radio module	Max. EIRP (dB)	(mW)	Max. Power Density S (mW/cm^2)
NKR-DNXAG1	25.29	338.06	0.079
U4Y-DAXAO1	22.42	174.58	0.025
BLE (GFSK)	11.28	13.43	
ESL (MSK) under 15.249			
Summed		**526.07**	**0.1040**
Limit		1000	1

Conclusion:

Additional power reduction is not required and the sume of power density and power remain below the limit, when the device is used in Mobile scenario at minimum 20 cm away from any human body.