Model Information	
FCC ID:	NZLPL1N
Model:	PL1N
# of Transmitters Simultaneously Transmitting	2
Distance to User (cm)	20
Mobile or Portable	Mobile
Field Strength or Worse Case Output Power	
EIRP - BLE - 2.4GHz (dBm)	13.12
EIRP - WiFi - 2.4GHz (dBm)	28.82
Radiated Field Strength - Motion Radar Sensor - 5.8GHz (dBuV/m)	94.8
Antenna Gain	
Worse Case Antenna Gain - BLE (dBi)	3.26
Worse Case Antenna Gain - WiFi (dBi)	3.26
Worse Case Antenna Gain - Motion Radar Sensor (dBi)	2

Requirements	
Distance to User (cm):	d≥20
Exposure Condition:	Mobile
Model Information	
Frequency (MHz):	2440
Distance to User (cm):	20
EIRP(dBm):	13.12
Distance to User (cm):	20
Antenna Gain (dBi)	3.26
Numerical Antenna Gain	2.118361135
Tune Up Adjustment (dB)	1
EIRP with tune up tolerance (dBm):	14.12
EIRP with tune up tolerance (mW):	25.823
Power Density (mW/cm^2)	0.005140
Power Density Limit (mW/cm^2)	1

Exposure Evaluation
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 the 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

Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(ii) 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
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

According to KDB447498 Section 3, the RF exposure guidelines adopted by the FCC are based on SAR and MPE limits. The basic restrictions for human exposure is defined by SAR limits. MPE limits are derived from the SAR limits, in terms of free-space field strength and power density.

Requirements	
Distance to User (cm):	d≥20
Exposure Condition:	Mobile
Model Information	
Frequency (MHz):	2437
Distance to User (cm):	20
EIRP (dBm):	28.82
Distance to User (cm):	20
Antenna Gain (dBi)	3.26
Numerical Antenna Gain	2.118361135
Tune Up Adjustment (dB)	1
EIRP with tune up tolerance (dBm):	29.82
EIRP with tune up tolerance (mW):	959.401
Power Density (mW/cm^2)	0.190964
Power Density Limit (mW/cm^2)	1

Exposure Evaluation
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 the 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

Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(ii) 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
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

According to KDB447498 Section 3, the RF exposure guidelines adopted by the FCC are based on SAR and MPE limits. The basic restrictions for human exposure is defined by SAR limits. MPE limits are derived from the SAR limits, in terms of free-space field strength and power density.

Requirements	
Distance to User (cm):	d≥20
Exposure Condition:	Mobile
Model Information	
Frequency (MHz):	5872.3
Measured Field Strength (dBuV/m):	94.80
Distance to User (cm):	20
dBuV/m to V/m	0.055
Worst Case EIRP (mW)	0.905986
ERP DBM	-0.428787
ERP + Tune Up Tolerance (dBm)	0.571213
ERP + Tune Up Tolerance (mW)	1.140568
Power Density (mW/cm^2)	0.000227
Power Density Limit (mW/cm^2)	1

Exposure Evaluation
Equation from page 18 of OET Bulletin 65, Edition 97-01
S=(PG)/4πR 2
Where S: power density
P: power input to the 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

Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(ii) 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
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

According to KDB447498 Section 3, the RF exposure guidelines adopted by the FCC are based on SAR and MPE limits. The basic restrictions for human exposure is defined by SAR limits. MPE limits are derived from the SAR limits, in terms of free-space field strength and power density.

FCC Total Exposure Ratio		Limit
BLE	0.005140	
WiFi	0.190964	
Radar	0.000227	
Total Exposure Ratio=	0.196330	1

According to KDB447498: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. 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 modeled or measured field strengths or power density, is ≤ 1.0.

	EIRP (W)	FRL Limit Calculation	Ratio	
BLE	0.025822602	2.705287981	0.009545	
WIFI	0.959400632	2.703014431	0.354937	
Radar	0.001140568	4.930316994	0.000231	
		Sum of Ratios	0.364714	<1

Field reference level (FRL) exposure evaluation is required if the separation distanc
bystander and the device's radiating element is greater than 20 cm (i.e. mobile dev
operates as follows:

- below 20 MHz and the source-based, time-averaged maximum EIRP of the de
(adjusted for tune-up tolerance)
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged r
equal to or less than $4.49/f^{0.5}W$ (adjusted for tune-up tolerance), where f is
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged
equal to or less than 0.6 W (adjusted for tune-up tolerance)
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged n
equal to or less than $1.31 \times 10^{-2} f^{0.6834} W$ (adjusted for tune-up tolerance).
- at or above 6 GHz and the source-based, time-averaged maximum EIRP of the
(adjusted for tune-up tolerance)

In these cases, the information contained in the RF exposure technical brief may b
demonstrates how the EIRP was derived.

ce between the user and/or
vices), except when the device

vice is equal to or less than 1 W

maximum EIRP of the device is
in MHz
l maximum EIRP of the device is

naximum EIRP of the device is
where f is in MHz
e device is equal to or less than 5 W

be limited to information that