

5. RF EXPOSURE EVALUATION

5.1 Applicable Standard

According to §1.1307(b)(3)(i)

(C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.

5.2 Measurement Result

Operation Modes	Frequency (MHz)	$\lambda/2\pi$ (mm)	Distance (mm)	Exemption ERP		Maximum Conducted Power including Tune-up Tolerance (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	MPE-Based Exemption
				(mW)	(dBm)					
WLAN 2.4G	2412-2462	19.80	200	768	28.85	19	1.93	18.78	75.51	Compliant
Sensor	24125	9.22	200	768	28.85	/	/	9.45	8.81	Compliant
WCDMA Band II	1850-1910	25.82	200	768	28.85	25	2.61	25.46	351.56	Compliant
WCDMA Band IV	1710-1755	27.93	200	768	28.85	25	3.63	26.48	444.63	Compliant
WCDMA Band V	824-849	57.97	200	422	26.25	25	2.39	25.24	334.20	Compliant
LTE Band 2	1850-1910	25.82	200	768	28.85	25	2.61	25.46	351.56	Compliant
LTE Band 4	1710-1755	27.93	200	768	28.85	25	3.63	26.48	444.63	Compliant
LTE Band 5	824-849	57.97	200	422	26.25	25	2.39	25.24	334.20	Compliant
LTE Band 12	699-716	68.34	200	358	25.54	25	-0.21	22.64	183.65	Compliant
LTE Band 13	777-787	61.48	200	398	26.00	25	1.42	24.27	267.30	Compliant
LTE Band 25	1850-1915	25.82	200	768	28.85	25	2.61	25.46	351.56	Compliant
LTE Band 26	814-849	58.69	200	417	26.2	25	2.39	25.24	334.20	Compliant

The device contains two certified module, WWAN module FCC ID: XMR201909EG95NAX, Sensor module FCC ID: 2ASYV-K-LD2.

The maximum Field strength for Sensor module FCC ID: 2ASYV-K-LD2 is 106.8 dB μ V/m @3m (ERP=9.45dBm),

WLAN 2.4G and Sensor, WWAN can transmit simultaneously:

$$\sum_{i=1}^a \left(\frac{P_i}{P_{th_i}} \right) + \sum_{j=1}^b \left(\frac{ERP_j}{ERP_{th_j}} \right) + \sum_{k=1}^c \left(\frac{Evaluated_k}{Exposure Limit_k} \right)$$

$$= \frac{EPR_{WLAN}}{P_{limit-WLAN}} + \frac{EPR_{WWAN}}{P_{limit-WWAN}} + \frac{EPR_{Sensor}}{P_{limit-Sensor}}$$

$$= \frac{75.51}{768} + \frac{334.2}{417} + \frac{8.81}{768}$$

$$= 0.91$$

Result: The device compliant the Exemption at 20cm distances.

===== END OF REPORT =====