

Maximum Permissible Exposure Evaluation

FCC ID: XUJG5201

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b).

EUT Specification

Product Name:	Car Sense Vision
Trade Mark:	/
Model/Type Reference:	YG5201
Listed Model(s):	/
Model Differences:	/
Frequency Band (Operating)	WLAN: 2412MHz ~ 2462MHz WCDMA Band II: UL: 1852.4MHz~1907.6MHz, DL: 1932.6MHz~1987.4MHz WCDMA Band IV: UL: 1712.4MHz~1752.6MHz, DL: 2112.6MHz~2152.4MHz WCDMA Band V: UL: 826.4MHz~846.6MHz, DL: 871.6MHz~1891.4MHz LTE Band 2: UL: 1850.7MHz~1909.3MHz, DL: 1930.7MHz~1989.3MHz LTE Band 4: UL: 1710.7MHz~1754.3MHz, DL: 2110.7MHz~2154.3MHz LTE Band 5: UL: 824.7MHz~848.3MHz, DL: 869.7MHz~893.3MHz LTE Band 12: UL: 699.7MHz~715.3MHz, DL: 729.7MHz~745.3MHz LTE Band 13: UL: 779.5MHz~784.5MHz, DL: 748.5MHz~751.0MHz LTE Band 17: UL: 706.5MHz~713.5MHz, DL: 736.5MHz~743.5MHz LTE Band 26 (814~824MHz): UL: 814MHz~824MHz, DL: 859MHz~869MHz LTE Band 26 (824~849MHz): UL: 824MHz~849MHz, DL: 869MHz~894MHz LTE Band 41: UL: 2498.5MHz~2687.5MHz, DL: 2498.5MHz~2687.5MHz LTE Band 66: UL: 1710.7MHz~1779.3MHz, DL: 2110.7MHz~2179.3MHz
Device Category	☐ Portable (<5mm separation) ☐ Mobile (>20cm separation) ☒ Fixed (>20cm separation) ☐ Others ____
Exposure Classification	☐ Occupational/Controlled exposure (S=5mW/cm ²) ☒ General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna Diversity	☐ Single antenna ☒ Multiple antennas ☐ TX diversity ☐ RX diversity ☐ TX/RX diversity
Antenna Gain (Max)	WLAN: 1.31dBi Max WCDMA Band II: 3.27dBi Max WCDMA Band IV: -0.22dBi Max WCDMA Band V: -1.03dBi Max Band 2: 3.27dBi Max Band 4: -0.22dBi Max Band 5: -1.03dBi Max Band 12: -1.20dBi Max Band 13: -0.53dBi Max Band 17: -1.20dBi Max Band 26 (814~824MHz): -0.53dBi Max

	Band 26 (824~849MHz): -1.03dBi Max Band 41: 1.21dBi Max Band 66: -0.22dBi Max
Evaluation Applied	☒ MPE Evaluation ☐ SAR Evaluation

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
(A) Limits for Occupational/Controlled Exposure				
300-1500	--	--	F/300	<6
1500-100000	--	--	5	<6
(B) Limits for General Population/Uncontrolled Exposure				
300-1500	--	--	F/1500	<30
1500-100000	--	--	1	<30

Note: F = MHz

Calculation Method

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where:

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d limit of MPE is 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

Mode	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Tune Up Tolerance (dB)	Max. Tune Up Power (dBm)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
802.11n(HT20)	2412	1.31	17.22	± 1	18.50	0.0190	1
WCDMA Band II	1880	3.27	22.99	± 1	24.00	0.1061	1
WCDMA Band IV	1752.6	-0.22	22.95	± 1	24.00	0.0431	1
WCDMA Band V	826.4	-1.03	23.52	± 1	24.50	0.0366	0.55
LTE Band 2	1851.5	3.27	23.85	± 1	25.00	0.1010	1
LTE Band 4	1732.5	-0.22	24.00	± 1	25.00	0.0415	1
LTE Band 5	848.3	-1.03	24.14	± 1	25.00	0.0318	0.57
LTE Band 12	700.5	-1.20	24.14	± 1	25.00	0.0282	0.47
LTE Band 13	782	-0.53	24.11	± 1	25.00	0.0306	0.52
LTE Band 17	711	-1.20	24.04	± 1	25.00	0.0243	0.47
Band 26 (814~824)	819	-0.53	23.97	± 1	25.00	0.0265	0.55
Band 26 (824~849)	848.3	-1.03	24.07	± 1	25.00	0.0221	0.57
LTE Band 41	2506	1.21	23.37	± 1	24.50	0.0308	1
LTE Band 66	1778.5	-0.22	23.86	± 1	25.00	0.0234	1

The WIFI and WCDMA can transmit simultaneously.

WIFI Power density at 20cm (mW/cm ²)	WCDMA Power density at 20cm (mW/cm ²)	Total Power density at 20cm (mW/cm ²)	Power density Limit (mW/cm ²)
0.0190	0.1061	0.1251	1

Note:

1. Calculate in the worst-case mode.
2. Max. Tune Up Power is declared by manufacturer, and used to calculate.
3. For a more detailed features description, please refer to the RF Test Report.

*****THE END*****