



Test Report No.:
FCC2025-0002-H

TEST REPORT

FCC ID : 2BNS6-TM2256-500010
Applicant : Zhengzhou Tiamaes Technology Co., Ltd
Product Name : 4G IN-VEHICLE GATEWAY
Model No. : TM2256

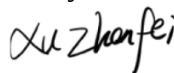
CVC Testing Technology Co., Ltd.

Product Name	4G IN-VEHICLE GATEWAY	Trade Mark	
Type/Model	TM2256	Sample Status	/
Applicant	Zhengzhou Tiamaes Technology Co., Ltd		
Applicant Address	Rooms 106-606 and 108-608, Building 10, No. 316 Lianhua Street, High tech Zone, Zhengzhou City		
Manufacturer	Zhengzhou Tiamaes Technology Co., Ltd		
Manufacturer Address	Rooms 106-606 and 108-608, Building 10, No. 316 Lianhua Street, High tech Zone, Zhengzhou City		
Factory	Zhengzhou Tiamaes Technology Co., Ltd		
Factory Address	Rooms 106-606 and 108-608, Building 10, No. 316 Lianhua Street, High tech Zone, Zhengzhou City		
Sample Identification	1-1	Test Item	RF Exposure
Tested According To	FCC Part 2 (Section 2.1093) KDB 447498 D04 Interim General RF Exposure Guidance v01 IEEE C95.1-2019		
Receiving Date	2025.01.15	Completing Date	2025.07.29
Test conclusion	The equipment under test was found to comply with the requirements of the standards applied. Final Verdict: Pass. Seal of CVC Date of issue: 2025. 07. 29		
Abbreviations: / Pass= passed Fail = failed N/A= not applicable			
This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.			

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCC2025-0002-H	Original release	2025.07.29

1. General Product Information

1.1 General information

Product Name	4G IN-VEHICLE GATEWAY
Model No.	TM2256
Additional model	/
Power adapter	AC 100-240V 50-60Hz
Power Supply	DC 10-36V
Serial Number(SN)	/
Antenna Type	External Antenna(Rod antenna) External Antenna(Patch antenna)
Antenna Gain	WIFI2.4GHz(Rod antenna): Ant1:2.50 dBi, Ant2:2.50 dBi (provided by client) WIFI2.4GHz(Patch antenna): Ant1:1.21 dBi, Ant2:1.21 dBi (provided by client) Rod antenna: U-NII-1: Ant1:2.30 dBi, Ant2:2.30 dBi (provided by client) U-NII-3: Ant1:2.40 dBi, Ant2:2.40 dBi (provided by client) Patch antenna: U-NII-1: Ant1:0.77 dBi, Ant2:0.77 dBi (provided by client) U-NII-3: Ant1:2.04 dBi, Ant2:2.04 dBi (provided by client) CELL Antenna: Rod Antenna: GSM850:1.4dBi; GSM1900:1.6dBi; WCDMA B2:1.6dBi; WCDMA B4:-0.3dBi; WCDMA B5:1.4dBi; LTE B2:1.6dBi; LTE B4:-0.3dBi; LTE B5:1.4dBi; LTE B7:2.9dBi; LTE B12:0.5dBi; LTE B17:0.2dBi; LTE B38:2.8dBi; LTE B66:0.7dBi Patch Antenna: GSM850:-0.44dBi; GSM1900:-0.06dBi; WCDMA B2:-0.06dBi; WCDMA B4:-1.44dBi; WCDMA B5:-0.44dBi; LTE B2:-0.06dBi; LTE B4:-1.44dBi; LTE B5:-0.44dBi; LTE B7:-2.18dBi; LTE B12:-0.94dBi; LTE B17:-1.55dBi; LTE B38:-2.22dBi; LTE B66:-1.44dBi
Beamforming gain	Unsupported (provided by client)
Frequency Range	IEEE 802.11b/g/n(HT20)/ax(HE20): 2412~2462MHz IEEE 802.11n(HT40)/ax(HE40): 2422~2452MHz U-NII-1: For 20MHz:5180-5240MHz For 40MHz:5190-5230MHz For 80MHz:5210MHz U-NII-3: For 20MHz:5745-5825MHz For 40MHz:5755-5795MHz For 80MHz:5775MHz 2/3/4G: GSM850:824 ~ 849MHz GSM1900:1850 ~ 1910MHz WCDMA B2:1850 ~ 1910MHz WCDMA B4:1710 ~ 1755MHz WCDMA B5:824 ~ 849MHz LTE B2:1850 ~ 1910MHz LTE B4:1710 ~ 1755MHz LTE B5:824 ~ 849MHz LTE B7:2500 ~ 2570MHz

	LTE B12:699 ~ 716MHz LTE B17:704 ~ 716MHz LTE B38:2570 ~ 2620MHz LTE B66:1710 ~ 1780MHz
Operate Temp.Range	-30°C~+70°C
Note: 1. The information of the EUT is declared by the manufacturer. 2. The laboratory is not responsible for the product technical specification provided by the client. 3. The product models of this application are: TM2256. All the tests carried out on model TM2256. 4. EUT photo refer to report (Report NO.:FCC2025-0002-EUT). 5. The EUT WIFI have MIMO function, provides 2 completed transmitter and 2 receiver. 6. The EUT LTE have SISO function, provides 1 completed transmitter and 2 receiver.	

2. Human Exposure Assessment

2.1 RF Exposure Test Exemptions for Single Source

2.1.1 1-mW Test Exemption

The 1 mW Test Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

The 1 mW blanket exemption applies at separation distances less than 0.5 cm, including where there is no separation. This exemption shall not be used in conjunction with other exemption criteria other than those for multiple RF sources in paragraph § 1.1307(b)(3)(ii)(A).

The 1 mW exemption is independent of service type and covers the full range of 100 kHz to 100 GHz, but it shall not be used in conjunction with other exemption criteria or in devices with higher-power transmitters operating in the same time-averaging period. Exposure from such higher-power transmitters would invalidate the underlying assumption that exposure from the lower-power transmitter is the only contributor to SAR in the relevant volume of tissue.

2.1.2 SAR-Based Exemption

A more comprehensive exemption, considering a variable power threshold that depends on both the *separation distance* and power, is provided in § 1.1307(b)(3)(i)(B). This exemption is applicable to the frequency range between 300 MHz and 6 GHz, with *test separation distances* between 0.5 cm and 40 cm, and for all RF sources in fixed, mobile, and portable device exposure conditions.

Accordingly, a RF source is considered an *RF exempt device* if its available maximum time averaged (matched conducted) power or its effective radiated power (ERP), whichever is greater, are below a specified threshold. This exemption threshold was derived based on general population 1-g SAR requirements.

General frequency and separation-distance dependent MPE-based effective radiated power (ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

The table applies to any RF source (i.e., single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits. These criteria apply at separation distances from any part of the radiating structure of at least $\lambda/2\pi$. The thresholds are based on the general population MPE limits with a single perfect reflection, outside of the reactive near-field, and in the main beam of the radiator.

For mobile devices that are not exempt per Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] at distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than $ERP_{20\text{cm}}$ in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)]

TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES
SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

RF Source Frequency			Minimum Distance			Threshold ERP
f_L MHz		f_H MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	-	1.34	159m	-	35.6m	$1920R^2$
1.34	-	30	35.6m	-	1.6m	$3450R^2/f^2$
30	-	300	1.6m	-	159mm	$3.83R^2$
300	-	1500	159mm	-	31.8mm	$0.0128R^2/f^2$
1500	-	100000	31.8mm	-	0.5mm	$19.2R^2$
Subscripts L and H are low and high; λ is wavelength. From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.						

2.1.3 MPE-Based Exemption

An alternative to the SAR-based exemption is provided in § 1.1307(b)(3)(i)(C), for a much wider frequency range, from 300 kHz to 100 GHz, applicable for separation distances greater or equal to $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. The MPE-based test exemption condition is in terms of ERP, defined as the product of the maximum antenna gain and the delivered maximum time-averaged power.¹⁰ For this case, a RF source is an *RF exempt device* if its ERP (watts) is no more than a frequency-dependent value, as detailed tabular form in Appendix B. These limits have been derived based on the basic specifications on Maximum Permissible Exposure (MPE) considered for the FCC rules in § 1.1310(e)(1).

SAR-based thresholds are derived based on frequency, power, and separation distance of the RF source. The formula defines the thresholds in general for either available maximum time-averaged power or maximum time-averaged ERP, whichever is greater.

If the ERP of a device is not easily determined, such as for a portable device with a small form factor, the applicant may use the available maximum time-averaged power exclusively if the device antenna or radiating structure does not exceed an electrical length of $\lambda/4$.

As for devices with antennas of length greater than $\lambda/4$ where the gain is not well defined, but always less than that of a half-wave dipole (length $\lambda/2$), the available maximum time-averaged power generated by the device may be used in place of the maximum time-averaged ERP, where that value is not known.

The separation distance is the smallest distance from any part of the antenna or radiating structure for all persons, during operation at the applicable ERP. In the case of mobile or portable devices, the separation distance is from the outer housing of the device where it is closest to the antenna.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW). This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

$$ERP_{20cm}(mW) = \begin{cases} 2040f_{(GHz)} & 0.3GHz \leq f \leq 1.5GHz \\ 3060 & 1.5GHz \leq f \leq 6GHz \end{cases} \quad (B. 1)$$

$$P_{th}(mW) = \begin{cases} ERP_{20cm}(d_{(cm)}/20cm)^x & d \leq 20cm \\ ERP_{20cm} & 20cm < d \leq 40cm \end{cases} \quad (B. 2)$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20cm} \sqrt{f_{(GHz)}}} \right)$$

and f is in GHz, d is the separation distance (cm), and ERP_{20cm} is per Formula (B.1).

2.1.4 MPE exposure limits

Devices operating in standalone mobile device exposure conditions may contain a single transmitter or multiple transmitters that do not transmit simultaneously. Mobile devices, as defined in § 2.1091 along with their applicable RF exposure limits, are characterized by the requirement of maintaining a minimum *test separation distance* ≥ 20 cm between any radiating structure of the device and nearby persons; to apply only mobile device (MPE) exposure limits. This *test separation distance* requirement must be defined for the most conservative exposure conditions, and must be fully supported for all the operating and installation configurations of the transmitter and its antenna(s), according to the source-based time-averaged maximum power requirements of § 2.1091(d)(2).

$$S = \frac{PG}{4\pi R^2}$$

Where

S: power density in mW/cm^2

P: power input to the antenna in mW

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 in cm

Note:

1. Mobile or fixed location transmitters, minimum separation distance is 20 cm, even if calculations indicate MPE distance is less.
2. The Numeric Gain calculated by $10^{(ant.Gain*(dBi)/10)}$.
3. Each band max power which perform MPE of any configurations.

Table 1 to § 1.1310(e)(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)	Averaging time (minutes)
(i)Limits for Occupational/Controlled Exposure				
0.3~3.0	614	1.63	*(100)	≤ 6
3.0~30	1842/f	4.89/f	*(900/f ²)	< 6
30~300	61.4	0.163	1.0	< 6
300~1500			f/300	< 6
1500~100000			5	< 6
(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
300~1500			F/1500	< 30
1500~100000			1.0	< 30
f=frequency in MHz; *=Plane wave equivalent power density.				

2.2 RF Exposure Test Exemptions for Simultaneous Transmission Sources

2.2.1 1-mW Test Exemption for Multiple Sources

As discussed in § 1.1307(b)(3)(ii)(A), the 1-mW exemption intended for single transmitters may be also applied to simultaneous transmission conditions, within the same host device, according one of the following criteria:

- a) When maximum available power each individual transmitting antenna within the same time averaging period is ≤ 1 mW, and the nearest parts of the antenna structures of the simultaneously operating transmitters are separated by at least 2 cm.
- b) When the aggregate maximum available power of all transmitting antennas is ≤ 1 mW in the same time-averaging period.

This exemption may not be combined with any other exemption.

2.2.2 Simultaneous Transmission with both SAR-based and MPE-Based Test Exemptions

This case is described in detail in § 1.1307(b)(3)(ii)(B) and covers the situations where both SAR-based and MPE-based exemption may be considered for test exemption in fixed, mobile, or portable device exposure conditions. For these cases, a device with multiple RF sources transmitting simultaneously will be considered an *RF exempt device* if the condition of Formula (1) is satisfied.

The sum of the ratios of the applicable terms for SAR-based, MPE-based and measured SAR or MPE shall be less than 1, to determine simultaneous transmission exposure compliance.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Where

a is number of fixed, mobile, or portable RF sources claiming exemption using the § 1.1307(b)(3)(i)(B) formula for P_{th} , including existing exempt transmitters and those being added.

b is number of fixed, mobile, or portable RF sources claiming exemption using the applicable § 1.1307(b)(3)(i)(C) Table 1 formula for Threshold ERP, including existing exempt transmitters and those being added.

c is number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance.

P_i is the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

$P_{th,i}$ is the exemption threshold power (P_{th}) according to the § 1.1307(b)(3)(i)(B) formula for fixed, mobile, or portable RF source i.

ERP_j is the available maximum time-averaged power or the ERP, whichever is greater, of fixed, mobile, or portable RF source j.

$ERP_{th,j}$ is exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least $\lambda/2\pi$, according to the applicable § 1.1307(b)(3)(i)(C) Table 1 formula at the location in question.

$Evaluated_k$ is the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation.

$Exposure Limit_k$ is either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable sources, as applicable.

2.3 CLASSIFICATION

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

Method in name of	calculation method
Method 1	1-mW Test Exemption
Method 2	SAR-Based Exemption
Method 3	MPE-Based Exemption
Method 4	MPE exposure limits
Method 5	1-mW Test Exemption for Multiple Sources
Method 6	Simultaneous Transmission with both SAR-based and MPE-Based Test Exemptions

3. RF Output Power

The tuned conducted Average Power (declared by client)

Mode	Frequency(MHz)	Target Power(dBm)	Tolerance (dBm)	Lower Tolerance (dBm)	Upper Tolerance (dBm)
11B Ant1	2412-2462MHz	20.0	±1.0	19	21
11G Ant1	2412-2462MHz	22.0	±1.0	21	23
11N20 Ant1	2412-2462MHz	20.5	±0.5	20	21
11N40 Ant1	2422-2452MHz	21.0	±1.0	20	22
11AX20 Ant1	2412-2462MHz	20.5	±0.5	20	21
11AX40 Ant1	2422-2452MHz	21.0	±1.0	20	22
11B Ant2	2412-2462MHz	18.0	±1.0	17	19
11G Ant2	2412-2462MHz	22.0	±1.0	21	23
11N20 Ant2	2412-2462MHz	20.5	±0.5	20	21
11N40 Ant2	2422-2452MHz	21.0	±1.0	20	22
11AX20 Ant2	2412-2462MHz	20.5	±0.5	20	21
11AX40 Ant2	2422-2452MHz	21.0	±1.0	20	22
11A Ant1	5180~5240MHz	18.0	±1.0	17	19
11A Ant1	5745~5825MHz	14.5	±0.5	14	15
11N20 Ant1	5180~5240MHz	17.5	±0.5	17	18
11N20 Ant1	5745~5825MHz	14.5	±0.5	14	15
11N40 Ant1	5190~5230MHz	18.0	±1.0	17	19
11N40 Ant1	5755~5795MHz	15.5	±0.5	15	16
11AC20 Ant1	5180~5240MHz	18.0	±1.0	17	19
11AC20 Ant1	5745~5825MHz	14.0	±1.0	13	15
11AC40 Ant1	5190~5230MHz	18.5	±0.5	18	19
11AC40 Ant1	5755~5795MHz	14.0	±1.0	13	15
11AC80 Ant1	5180~5240MHz	17.5	±0.5	17	18
11AC80 Ant1	5745~5825MHz	12.5	±0.5	12	13
11AX20 Ant1	5180~5240MHz	17.0	±0.5	16	18
11AX20 Ant1	5745~5825MHz	13.0	±1.0	12	14
11AXC40 Ant1	5190~5230MHz	18.5	±0.5	18	19
11AX40 Ant1	5755~5795MHz	13.0	±1.0	12	14
11AX80 Ant1	5180~5240MHz	17.5	±0.5	17	18
11AX80 Ant1	5745~5825MHz	12.0	±1.0	13	14
11A Ant2	5180~5240MHz	16.0	±1.0	15	17
11A Ant2	5745~5825MHz	11.0	±1.0	10	12
11N20 Ant2	5180~5240MHz	15.5	±0.5	15	16
11N20 Ant2	5745~5825MHz	11.0	±1.0	10	12
11N40 Ant2	5190~5230MHz	16.5	±0.5	16	17
11N40 Ant2	5755~5795MHz	13.0	±1.0	12	14
11AC20 Ant2	5180~5240MHz	15.0	±1.0	14	16
11AC20 Ant2	5745~5825MHz	11.5	±0.5	11	12
11AC40 Ant2	5190~5230MHz	16.5	±0.5	16	17

Mode	Frequency(MHz)	Target Power(dBm)	Tolerance (dBm)	Lower Tolerance (dBm)	Upper Tolerance (dBm)
11AC40 Ant2	5755~5795MHz	12.5	±0.5	12	13
11AC80 Ant2	5180~5240MHz	16.5	±0.5	16	17
11AC80 Ant2	5745~5825MHz	10.5	±0.5	10	11
11AX20 Ant2	5180~5240MHz	15.0	±1.0	14	16
11AX20 Ant2	5745~5825MHz	10.0	±1.0	9	11
11AX40 Ant2	5190~5230MHz	16.0	±1.0	15	17
11AX40 Ant2	5755~5795MHz	11.0	±1.0	10	12
11AX80 Ant2	5180~5240MHz	15.5	±0.5	15	16
11AX80 Ant2	5745~5825MHz	9.5	±0.5	9	10
GSM850	824 ~ 849MHz	30	+2	28.00	32.00
GSM1900	1850 ~ 1910MHz	28	+2	26.00	30.00
WCDMA B2	1850 ~ 1910MHz	22.50	+2	20.50	24.50
WCDMA B4	1710 ~ 1755MHz	22.50	+2	20.50	24.50
WCDMA B5	824 ~ 849MHz	22.50	+2	20.50	24.50
LTE B2	1850 ~ 1910MHz	22.50	+2	20.50	24.50
LTE B4	1710 ~ 1755MHz	22.50	+2	20.50	24.50
LTE B5	824 ~ 849MHz	22.50	+2	20.50	24.50
LTE B7	2500 ~ 2570MHz	22.50	+2	20.50	24.50
LTE B12	699 ~ 716MHz	22.50	+2	20.50	24.50
LTE B17	704 ~ 716MHz	22.50	+2	20.50	24.50
LTE B38	2570 ~ 2620MHz	22.50	+2	20.50	24.50
LTE B66	1710 ~ 1780MHz	22.50	+2	20.50	24.50

The conducted power turn-up tolerance reference manufacturer specification.

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	19.91	≤30.00	PASS
	Ant2	2412	17.80	≤30.00	PASS
	Ant1	2437	20.13	≤30.00	PASS
	Ant2	2437	17.87	≤30.00	PASS
	Ant1	2462	20.01	≤30.00	PASS
	Ant2	2462	18.10	≤30.00	PASS
11G	Ant1	2412	21.19	≤30.00	PASS
	Ant2	2412	21.99	≤30.00	PASS
	Ant1	2437	22.63	≤30.00	PASS
	Ant2	2437	22.37	≤30.00	PASS
	Ant1	2462	22.61	≤30.00	PASS
	Ant2	2462	22.56	≤30.00	PASS
11N20MIMO	Ant1	2412	20.39	≤30.00	PASS
	Ant2	2412	20.19	≤30.00	PASS
	total	2412	23.30	≤30.00	PASS
	Ant1	2437	20.64	≤30.00	PASS
	Ant2	2437	20.53	≤30.00	PASS
	total	2437	23.60	≤30.00	PASS
	Ant1	2462	20.53	≤30.00	PASS
	Ant2	2462	20.55	≤30.00	PASS
11N40MIMO	total	2462	23.55	≤30.00	PASS
	Ant1	2422	21.24	≤30.00	PASS
	Ant2	2422	21.15	≤30.00	PASS
	total	2422	24.21	≤30.00	PASS
	Ant1	2437	21.08	≤30.00	PASS

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
	Ant2	2437	21.31	≤30.00	PASS
	total	2437	24.21	≤30.00	PASS
	Ant1	2452	20.95	≤30.00	PASS
	Ant2	2452	21.02	≤30.00	PASS
	total	2452	24.00	≤30.00	PASS
11AX20MIMO	Ant1	2412	20.78	≤30.00	PASS
	Ant2	2412	20.51	≤30.00	PASS
	total	2412	23.66	≤30.00	PASS
	Ant1	2437	20.84	≤30.00	PASS
	Ant2	2437	20.96	≤30.00	PASS
	total	2437	23.91	≤30.00	PASS
	Ant1	2462	20.92	≤30.00	PASS
	Ant2	2462	20.92	≤30.00	PASS
	total	2462	23.93	≤30.00	PASS
11AX40MIMO	Ant1	2422	21.18	≤30.00	PASS
	Ant2	2422	21.34	≤30.00	PASS
	total	2422	24.27	≤30.00	PASS
	Ant1	2437	21.15	≤30.00	PASS
	Ant2	2437	21.18	≤30.00	PASS
	total	2437	24.18	≤30.00	PASS
	Ant1	2452	21.02	≤30.00	PASS
	Ant2	2452	20.98	≤30.00	PASS
	total	2452	24.01	≤30.00	PASS
11A	Ant1	5180	17.72	≤23.98	PASS
	Ant2	5180	15.67	≤23.98	PASS
	Ant1	5200	17.60	≤23.98	PASS
	Ant2	5200	16.15	≤23.98	PASS
	Ant1	5240	18.65	≤23.98	PASS
	Ant2	5240	16.51	≤23.98	PASS
	Ant1	5745	14.17	≤30.00	PASS
	Ant2	5745	10.07	≤30.00	PASS
	Ant1	5785	14.81	≤30.00	PASS
	Ant2	5785	11.32	≤30.00	PASS
	Ant1	5825	14.57	≤30.00	PASS
	Ant2	5825	11.22	≤30.00	PASS
11N20MIMO	Ant1	5180	17.20	≤23.98	PASS
	Ant2	5180	15.33	≤23.98	PASS
	total	5180	19.38	≤23.98	PASS
	Ant1	5200	17.14	≤23.98	PASS
	Ant2	5200	15.69	≤23.98	PASS
	total	5200	19.49	≤23.98	PASS
	Ant1	5240	17.74	≤23.98	PASS
	Ant2	5240	15.70	≤23.98	PASS
	total	5240	19.85	≤23.98	PASS
	Ant1	5745	14.00	≤30.00	PASS
	Ant2	5745	10.49	≤30.00	PASS
	total	5745	15.60	≤30.00	PASS
	Ant1	5785	14.12	≤30.00	PASS
	Ant2	5785	11.42	≤30.00	PASS
	total	5785	15.99	≤30.00	PASS
	Ant1	5825	14.41	≤30.00	PASS
	Ant2	5825	11.71	≤30.00	PASS
	total	5825	16.28	≤30.00	PASS
11N40MIMO	Ant1	5190	17.96	≤23.98	PASS
	Ant2	5190	16.31	≤23.98	PASS
	total	5190	20.22	≤23.98	PASS
	Ant1	5230	18.96	≤23.98	PASS
	Ant2	5230	16.65	≤23.98	PASS
	total	5230	20.97	≤23.98	PASS
	Ant1	5755	15.18	≤30.00	PASS
	Ant2	5755	12.04	≤30.00	PASS
	total	5755	16.90	≤30.00	PASS

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
	Ant1	5795	15.73	≤30.00	PASS
	Ant2	5795	13.25	≤30.00	PASS
	total	5795	17.67	≤30.00	PASS
11AC20MIMO	Ant1	5180	17.39	≤23.98	PASS
	Ant2	5180	14.90	≤23.98	PASS
	total	5180	19.33	≤23.98	PASS
	Ant1	5200	17.50	≤23.98	PASS
	Ant2	5200	15.33	≤23.98	PASS
	total	5200	19.56	≤23.98	PASS
	Ant1	5240	18.33	≤23.98	PASS
	Ant2	5240	15.20	≤23.98	PASS
	total	5240	20.05	≤23.98	PASS
	Ant1	5745	13.68	≤30.00	PASS
	Ant2	5745	11.04	≤30.00	PASS
	total	5745	15.57	≤30.00	PASS
	Ant1	5785	14.37	≤30.00	PASS
	Ant2	5785	11.96	≤30.00	PASS
	total	5785	16.34	≤30.00	PASS
	Ant1	5825	14.31	≤30.00	PASS
	Ant2	5825	11.60	≤30.00	PASS
	total	5825	16.17	≤30.00	PASS
11AC40MIMO	Ant1	5190	18.22	≤23.98	PASS
	Ant2	5190	16.16	≤23.98	PASS
	total	5190	20.32	≤23.98	PASS
	Ant1	5230	18.45	≤23.98	PASS
	Ant2	5230	16.03	≤23.98	PASS
	total	5230	20.42	≤23.98	PASS
	Ant1	5755	14.70	≤30.00	PASS
	Ant2	5755	12.28	≤30.00	PASS
	total	5755	16.67	≤30.00	PASS
	Ant1	5795	13.95	≤30.00	PASS
11AC80MIMO	Ant2	5795	12.07	≤30.00	PASS
	total	5795	16.12	≤30.00	PASS
	Ant1	5210	17.74	≤23.98	PASS
	Ant2	5210	16.27	≤23.98	PASS
	total	5210	20.08	≤23.98	PASS
	Ant1	5775	12.85	≤30.00	PASS
11AX20MIMO	Ant2	5775	10.46	≤30.00	PASS
	total	5775	14.83	≤30.00	PASS
	Ant1	5180	16.81	≤23.98	PASS
	Ant2	5180	14.40	≤23.98	PASS
	total	5180	18.78	≤23.98	PASS
	Ant1	5200	17.01	≤23.98	PASS
	Ant2	5200	14.80	≤23.98	PASS
	total	5200	19.05	≤23.98	PASS
	Ant1	5240	17.29	≤23.98	PASS
	Ant2	5240	15.70	≤23.98	PASS
	total	5240	19.58	≤23.98	PASS
	Ant1	5745	12.44	≤30.00	PASS
	Ant2	5745	9.49	≤30.00	PASS
	total	5745	14.22	≤30.00	PASS
	Ant1	5785	13.02	≤30.00	PASS
	Ant2	5785	10.09	≤30.00	PASS
	total	5785	14.81	≤30.00	PASS
11AX40MIMO	Ant1	5825	12.63	≤30.00	PASS
	Ant2	5825	10.38	≤30.00	PASS
	total	5825	14.66	≤30.00	PASS
	Ant1	5190	18.14	≤23.98	PASS
	Ant2	5190	15.27	≤23.98	PASS
	total	5190	19.95	≤23.98	PASS
	Ant1	5230	18.14	≤23.98	PASS
	Ant2	5230	16.60	≤23.98	PASS

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	\Verdict
	total	5230	20.45	≤23.98	PASS
	Ant1	5755	12.97	≤30.00	PASS
	Ant2	5755	10.23	≤30.00	PASS
	total	5755	14.82	≤30.00	PASS
	Ant1	5795	13.55	≤30.00	PASS
	Ant2	5795	11.22	≤30.00	PASS
	total	5795	15.55	≤30.00	PASS
11AX80MIMO	Ant1	5210	17.69	≤23.98	PASS
	Ant2	5210	15.45	≤23.98	PASS
	total	5210	19.72	≤23.98	PASS
	Ant1	5775	13.34	≤30.00	PASS
	Ant2	5775	9.90	≤30.00	PASS
	total	5775	14.96	≤30.00	PASS
GSM850	Ant1	848.8	31.72	---	PASS
GSM1900	Ant1	1850.2	28.35	---	PASS
WCDMA B2	Ant1	1852.4	23.73	---	PASS
WCDMA B4	Ant1	1712.4	23.64	---	PASS
WCDMA B5	Ant1	846.6	23.78	---	PASS
LTE B2	Ant1	1855	23.02	---	PASS
LTE B4	Ant1	1717.5	22.41	---	PASS
LTE B5	Ant1	825.5	22.90	---	PASS
LTE B7	Ant1	2507.5	22.89	---	PASS
LTE B12	Ant1	714.5	22.91	---	PASS
LTE B17	Ant1	706.5	23.23	---	PASS
LTE B38	Ant1	2595	21.91	---	PASS
LTE B66	Ant1	1717.5	22.95	---	PASS

Note: The relevant measured result has the offset with cable loss already.

4. Test Results

Mode	Maximum source-based time averaged conducted output power (dBm)	Maximum source-based time averaged conducted output power (mW)	Minimum separation distance (cm)	Select calculation method	Limit for Exemption (mW)	Verdict
WIFI2.4GHz Ant1	23.00	199.5262	20	Method 3	3060	Exempt from SAR/MPE
WIFI2.4GHz Ant2	23.00	199.5262	20	Method 3	3060	Exempt from SAR/MPE
WIFI5GHz Ant1	19.00	79.4328	20	Method 3	3060	Exempt from SAR/MPE
WIFI5GHz Ant2	17.00	50.1187	20	Method 3	3060	Exempt from SAR/MPE
GSM850	32.00	198.11	20	Method 3	1680.96	Exempt from SAR/MPE
GSM1900	30.00	125.00	20	Method 3	3060	Exempt from SAR/MPE
WCDMA B2	24.50	281.84	20	Method 3	3060	Exempt from SAR/MPE
WCDMA B4	24.50	281.84	20	Method 3	3060	Exempt from SAR/MPE
WCDMA B5	24.50	281.84	20	Method 3	1680.96	Exempt from SAR/MPE
LTE B2	24.50	281.84	20	Method 3	3060	Exempt from SAR/MPE
LTE B4	24.50	281.84	20	Method 3	3060	Exempt from SAR/MPE
LTE B5	24.50	281.84	20	Method 3	1680.96	Exempt from SAR/MPE
LTE B7	24.50	281.84	20	Method 3	3060	Exempt from SAR/MPE
LTE B12	24.50	281.84	20	Method 3	1425.96	Exempt from SAR/MPE
LTE B17	24.50	281.84	20	Method 3	1436.16	Exempt from SAR/MPE

LTE B38	24.50	281.84	20	Method 3	3060	Exempt from SAR/MPE
LTE B66	24.50	281.84	20	Method 3	3060	Exempt from SAR/MPE
Mode		Calculation for Simultaneous Transmission		Select calculation method	Limit for Exemption	Verdict
Simultaneous Transmission		0.3703		Method 6	1	Exempt from SAR/MPE

Note: This device has two WIFI antennas and one CELL Tx antenna, two for WIFI transmission and one CELL transmission.

$$\text{Simultaneous Transmission} = (199.5262/3060) + (199.5262/3060) + (79.4328/3060) + (50.1187/3060) + (281.84/1425.96) = 0.3703$$

Therefore this device complies with FCC's RF radiation exposure limits for general population without SAR evaluation.

_____ No Body Text Below _____

Important

1. The test report is invalid without the official stamp of CVC;
2. Any part photocopies of the test report are forbidden without the written permission from CVC;
3. The test report is invalid without the signatures of Author and Reviewer;
4. The test report is invalid if altered;
5. Objections to the test report must be submitted to CVC within 15 days;
6. Generally, commission test is responsible for the tested samples only;
7. As for the test result, “—” or “ N/A” means “not applicable”, “ / ”means “not testing”, “P” means “pass” and “F” means “fail”.

Address: No.3,Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, China (Test location)

Post Code: 510663 Tel: 020-32293888

FAX: 020 32293889 E-mail: office@cvc.org.cn