

Rollease Acmeda Inc

MPE ASSESSMENT REPORT

Report Type:

FCC MPE assessment report

Model:

MT02-0401-067001, MT02-0401-067003,
MT02-0401-067004, MT02-0401-067005

REPORT NUMBER:

180802994SHA-003

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Factory: VirTex AVJ
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FCC ID: 2AGGZ-APULSE-2

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:



Project Engineer
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REVIEWED BY:



Reviewer
Daniel Zhao

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Revision History

Report No.	Version	Description	Issued Date
180802994SHA-003	Rev. 01	Initial issue of report	October 23, 2020

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Wi-Fi to RF433 Bridge
Type/Model:	MT02-0401-067001, MT02-0401-067003, MT02-0401-067004, MT02-0401-067005
Description of EUT:	The EUT is a Wi-Fi to RF433 Bridge, all models are same except the model name. After evaluation, we chose model MT02-0401-067001 for all tests.
Rating:	Input: 5.0V DC, 1A Adapter: 100-240V~, 50/60Hz, 0.5A
Category of EUT:	Class B
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	/
Hardware Version:	/
Sample received date:	September 11, 2018
Date of test:	December 22, 2018~December 27, 2018

1.2 Technical Specification

Frequency Range:	433.92MHz
Type of Modulation:	ASK
Channel Number:	1
Antenna:	1.2dBi max (Declared by manufacture), PCB antenna

Frequency Range:	2412MHz ~ 2462MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n-HT20, IEEE 802.11n-HT40
Type of Modulation:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT20: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT40: OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Channel Number:	11 Channels for 802.11b, 802.11g and 802.11n(HT20) 7 Channels for 802.11n(HT40)
Data Rate:	IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS7 IEEE 802.11n-HT40: Up to MCS7
Channel Separation:	1 MHz
Antenna:	0.7dBi, PCB antenna

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN1175
	IC Registration Lab CAB identifier.: CN0051
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	$4\ 000/f$	$5\ 000/f$	-
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	-
0,8-3 kHz	$250/f$	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	$0,73/f$	$0,92/f$	-
1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

2.2 Assessment Results

Power density (S) is calculated according to the formula:

$$S = P / (4\pi R^2)$$

Where S = power density in mW/cm²

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 180802994SHA-001&180802994SHA-002:

Mode	Frequency band	EIRP	Antenna Gain	R	S	Limits
	(MHz)	dBm	dBi	(cm)	(mW/cm ²)	(mW/cm ²)
433MHz	433.92	-23.2	1.20	20	0.000001	0.217
WiFi	2400 -2483.5	21.33	0.7	20	0.027036	1

For the device consider simultaneous transmission of WiFi and 433MHz:

The worst MPE = 0.000001 + 0.027036 = 0.027037mW/cm² < 0.217 mW/cm².

Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.

To ensure compliance, operations at closer than this distance is not recommended.

***** END *****