Prüfbericht-Nr.: *Test report no.*:	**CN23YM2P 004**	**Auftrags-Nr.:** *Order no.*:	**168443071**	Seite 1 von 10 *Page 1 of 10*
Kunden-Referenz-Nr.: *Client reference no.*:	N/A	**Auftragsdatum:** *Order date:*	2023-09-08	
Auftraggeber: *Client*:	**Allied Universal Electronic Monitoring US, Inc.** 1838 Gunn Hwy, Odessa FL 33556, United States			
Prüfgegenstand: *Test item*:	Home comunication unit			
Bezeichnung / Typ-Nr.: *Identification / Type no.*:	HUB-300 (Trademark: Attenti)			
Auftrags-Inhalt: *Order content*:	Test Report			
Prüfgrundlage: *Test specification*:	CFR47 FCC Part 2: Section 2.1091 CFR47 FCC Part 1: Section 1.1310 FCC KDB Publication 447498 v06			

Wareneingangsdatum: *Date of sample receipt*:	2023-08-29	Please refer to Photo Document
Prüfmuster-Nr.: *Test sample no:*	A003550494-001~011	
Prüfzeitraum: *Testing period*:	2023-09-15 - 2024-02-01	
Ort der Prüfung: *Place of testing*:	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüfergebnis*: *Test result**:	Pass	

geprüft von: tested by:	X Breeze Jiang Signed by: Breeze Jiang	**genehmigt von:** *authorized by*:	X Bell Hu Signed by: Bell Hu
Datum: *Date:* 2024-02-05		**Ausstellungsdatum:** *Issue date:* 2024-02-05	
Stellung / Position:	Sachverständige(r)/Expert	**Stellung** / Position:	Sachverständige(r)/Expert

Sonstiges / *Other*: FCC ID: NC3HUB-300

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery*: Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*

* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*P(ass) = passed a.m. test specification(s)*	*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Prüfbericht-Nr.: CN23YM2P 004
Test report no.:

Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. *The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.*
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. *Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report.* *Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.*
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the “Zero Guard Band Rule” and “Simple Acceptance” in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.

TEST SUMMARY

3.1.1 RF EXPOSURE COMPLIANCE

RESULT: Pass

CONTENTS

1. Test Sites

1.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.
No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Registration No.: 694916

1.2 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

1.3 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

1.4 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

1.5 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. facility located at No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China. is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

2. General Product Information

2.1 Product Function and Intended Use

The EUT is a Home comunication unit which supports 915MHz, 2.4G Wi-Fi and WDMA/LTE functions.

For details refer to the User Manual, Technical Description and Circuit Diagram.

2.2 Ratings and System Details

Table 1: Technical Specification of EUT

General Information of EUT	**Value**
Kind of Equipment:	Home comunication unit
Type Designation:	HUB-300
Trademark:	Attenti
FCC ID:	NC3HUB-300
Contains FCC ID:	N7NWP76B
Operating Voltage:	DC 5V input via AC/DC adapter
Testing Voltage:	AC 120V, 60Hz
Operating Temperature Range:	-20 °C ~ +55 °C
AC/DC adapter:	Model: KSA-12W-050200VE Input: 100-240AC Output: 5VDC, 2A
Technical Specification of 915MHz	
Operating Frequency:	915 MHz
Type of Modulation:	GFSK
Channel Number:	1 channel
Antenna Type:	Internal Antenna
Antenna Gain:	1.5 dBi (Provided by the Client)
Technical Specification of Wi-Fi 802.11 b/g/n	
Operating Frequency:	2412 - 2462 MHz for 802.11b/g/n(HT20)
Type of Modulation:	DSSS(DBPSK/DQPSK/CCK) OFDM(BPSK/QPSK/16QAM/64QAM)
Data Rate:	1/2/5.5/11 Mbps for 802.11b 6/9/12/18/24/36/48/54 Mbps for 802.11g MCS0 ~ MCS7 for 802.11n
Channel Number:	11 channels for 802.11b/g/n(HT20)
Channel Separation:	5 MHz
Antenna Type:	Internal Antenna
Antenna Gain:	3.7 dBi (Provided by the Client)
Technical Specification of WCDMA	
Operational Frequency:	WCDMA Band 2: 1852.4 to 1907.6 MHz WCDMA Band 4: 1712.4 to 1752.6 MHz

	WCDMA Band 5: 826.4 to 846.6 MHz
Type of Modulation:	QPSK
Power Class:	Class 3
Channel Bandwidth:	5MHz
TX and RX Antenna Ports:	1 * TRX, 1 * RX-only
Antenna Type:	Internal Antenna
Antenna Gain:	1.0 dBi for 698MHz to 960MHz 2.9 dBi for 1710MHz to 2170MHz (Provided by the Client)
Technical Specification of LTE	
Operational Frequency:	LTE Band 2: 1850 to 1910 MHz LTE Band 4: 1710 to 1755 MHz LTE Band 5: 824 to 849 MHz LTE Band12: 699 to 716 MHz LTE Band13: 777 to 787 MHz LTE Band14: 788 to 798 MHz LTE Band 25: 1850 to 1915 MHz LTE Band 26: 814 to 849 MHz LTE Band 66: 1710 to 1780 MHz LTE Band 71: 663 to 698 MHz
Type of Modulation:	QPSK
Power Class:	Class 3
Channel Bandwidth:	LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band12: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band13: 5MHz, 10MHz LTE Band14: 5MHz, 10MHz LTE Band 25: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 66: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz
TX and RX Antenna Ports:	1 * TRX, 1 * RX-only
Antenna Type:	Internal Antenna
Antenna Gain:	1.0 dBi for 698MHz to 960MHz 2.9 dBi for 1710MHz to 2170MHz (Provided by the Client)

2.3 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

2.4 Submitted Documents

- Application Form
- ID Label and Location Info
- User Manual
- Operation Description

3. Test Results

3.1 Transmitter Requirements & Test Suites

3.1.1 RF Exposure Compliance

RESULT: **Pass**

Test standard	:	47 CFR FCC Part 2.1091 CFR47 FCC Part 1: Section 1.1310 FCC KDB Publication 447498 v06
Limit	:	Table 1 of 47 CFR FCC Part 1.1310

This device is mobile device, and the applicant declares that the minimum separation distance is greater than 20cm. Therefore MPE measurement or computational modeling should be used to determine compliance.

➢ **Radio Frequency Exposure Limit**

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm²)
300-1,500	--	--	f/1500
1,500-100,000	--	--	1.0

➢ **Radio Frequency Exposure Calculation Formula**

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

where: S = power density (in appropriate units, e.g. mW/cm^2)
P = power input to the antenna (in appropriate units, e.g., 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 (appropriate units, e.g., cm)

or:

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

where: EIRP = equivalent (or effective) isotropically radiated power

➢ **RF Exposure Evaluation standalone operations:**

Operating Mode	Max. Power incl. tune-up (dBm)	Antenna Gain (dBi)	Max. E.R.P (dBm)	Max. E.I.R.P (dBm)	Min. Distance (cm)	Calculation (mW/cm^2)	FCC Limit (mW/cm^2)	Result
915MHz	10.3	1.5	9.65	---	20	0.0018	0.61	PASS
2.4G Wi-Fi	23.26	3.7	---	26.96	20	0.0988	1.0	PASS
WCDMA B2	21.62	2.9	---	24.52	20	0.0563	1.0	PASS
WCDMA B4	21.95	2.9	---	24.85	20	0.0608	1.0	PASS
WCDMA B5	23.10	1.0	21.95	---	20	0.0312	0.549	PASS
LTE B2	22.05	2.9	---	24.95	20	0.0622	1.0	PASS
LTE B4	21.98	2.9	---	24.88	20	0.0612	1.0	PASS
LTE B5	23.17	1.0	22.02	---	20	0.0317	0.549	PASS
LTE B12	23.41	1.0	22.26	---	20	0.0335	0.466	PASS
LTE B13	22.99	1.0	21.84	---	20	0.0304	0.518	PASS
LTE B14	23.03	1.0	21.88	---	20	0.0307	0.525	PASS
LTE B25	21.95	2.9	---	24.85	20	0.0608	1.0	PASS
LTE B26	23.06	1.0	21.91	---	20	0.0309	0.542	PASS
LTE B66	21.86	2.9		24.76	20	0.0595	1.0	PASS
LTE B71	23.05	1.0	21.90	---	20	0.0308	0.442	PASS

➢ **Simultaneous transmission MPE:**

Per KDB 447498 D01 v06, 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 calculated or measured field strengths or power density, is ≤ 1.0.

Simultaneous transmission Scenarios

No.	Simultaneous transmission Scenarios
1	915MHz + 2.4GHz Wi-Fi +WCDMA
2	915MHz + 2.4GHz Wi-Fi +LTE

No.	Mode	Calculation (mW/cm^2)	Limit (mW/cm^2)	Calculation	Limit
1	915MHz	0.0018	0.61	0.1626	1
	2.4GHz Wi-Fi	0.0988	1.0		
	WCDMA	0.0608	1.0		
2	915MHz	0.0018	0.61	0.1640	1
	2.4GHz Wi-Fi	0.0988	1.0		
	LTE	0.0622	1.0		

➢ **Conclusion**

Therefore the maximum calculations result of above are meet the requirement of Radio Frequency Exposure (MPE) limit.

4. List of Tables

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