SAR EVALUATION REPORT

FCC 47 CFR § 2.1093
IEEE Std. 1528-2013

For
HANDHELD VITALSIGNS MONITORING SYSTEM

FCC ID: 2AF8T-BW-X07HD
Model Name: BW-X07HD

Report Number: 4787997676.1
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Prepared for
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Revision History

Rev.	Date	Revisions	Revised By
V1.0	August 15, 2017	Initial Issue	

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1. Attestation of Test Results

Applicant Name	BEWELL CONNECT CORP	
Address	SUITE 410, 185 ALEWIFE BROOK PARKWAY CAMBRIDGE, Massachusetts, United States	
Manufacturer	Visiomed Technology Co., Ltd	
Address	2 Floor of No.1 Building, Jia An Technological Industrial Park, 67 District, Bao An, 518101 Shenzhen China	
Factory	Visiomed Technology Co., Ltd	
Address	2 Floor of No.1 Building, Jia An Technological Industrial Park, 67 District, Bao An, 518101 Shenzhen China	
EUT Name	HANDHELD VITALSIGNS MONITORING SYSTEM	
Model Name	BW-X07HD	
Sample Status	Normal	
Sample ID	\	
Brand	bewell connect	
Sample Received Date	April 25, 2017	
Date of Tested	April 26, 2017	
Applicable Standards	IEEE Std. 1528-2013 RSS-102 issue5	
SAR Limits (W/Kg)		
Exposure Category	Peak spatial-average(1g of tissue)	Extremities (hands, wrists, ankles, etc.) (10g of tissue)
General population / Uncontrolled exposure	1.6	4
The Highest Reported SAR (W/kg)		
RF Exposure Conditions	**Equipment Class**	
	Licensed	
Body	0.492	
Test Results	Pass	
Tested By: James Qin Engineer Project Associate	Reviewed By: Shawn Wen Laboratory Leader	Approved By: Stephen Guo Laboratory Manager

2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with IEEE Std. 1528-2013, RSS-102 Issue5, the following FCC Published RF exposure KDB procedures:

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D07 UMPC Mini Tablet v01r02

3. Facilities and Accreditation

The test site and measurement facilities used to collect data are located at

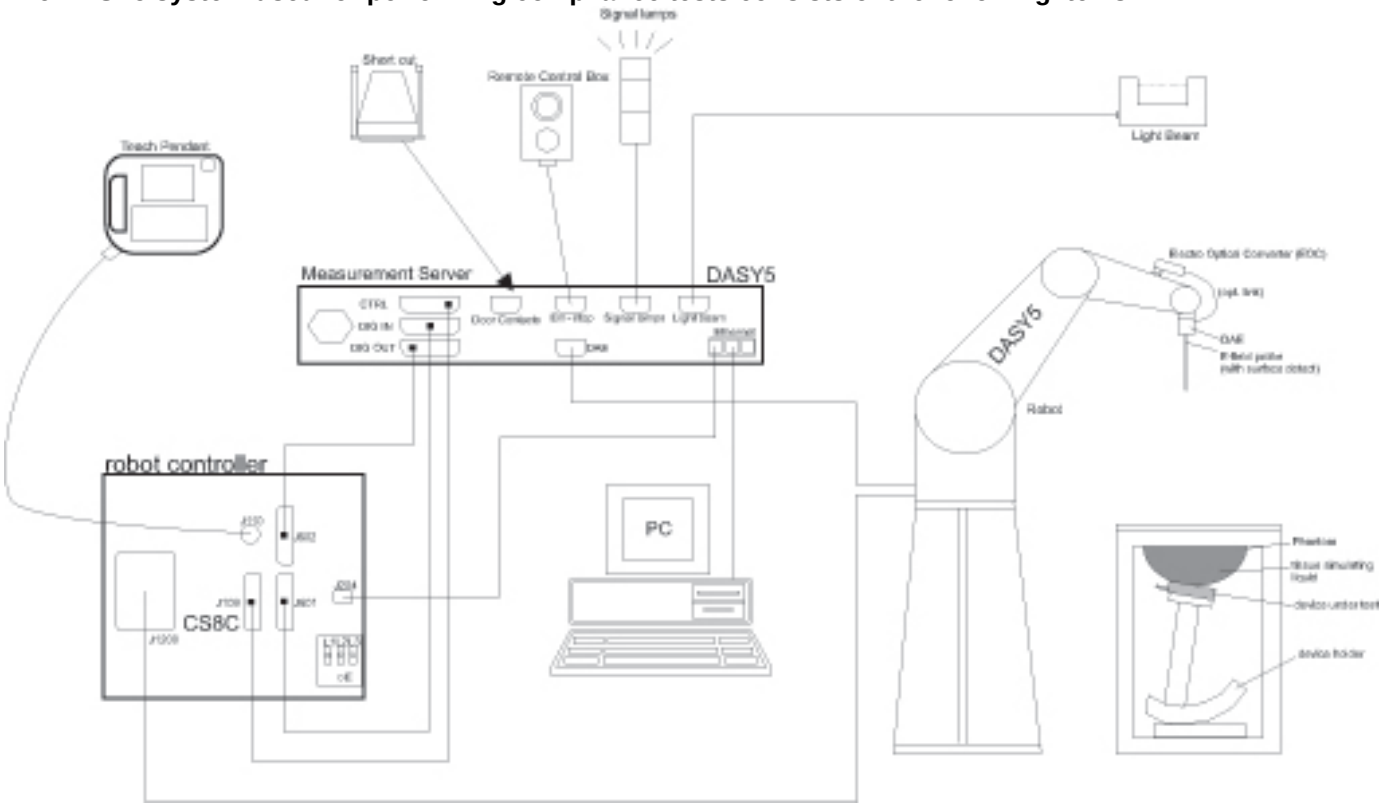
Ground Floor
SAR Test Room A

UL Verification Services Inc. is accredited by IAS & A2LA. Laboratory code TL-702 & 4102.01 respectively.

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY5 system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win7 and the DASY52 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

Zoom Scan Parameters extracted from KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the area scan based *1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

Step 5: Z-Scan (FCC only)

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation the extrapolated distance should not be larger than the step size in Z-direction.

4.3. Test Equipment

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations, and is traceable to recognized national standards.

Name of equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
ENA Network Analyzer	Keysight	E5080A	MY55100583	February 12, 2018
Dielectric Probe kit	SPEAG	SM DAK 040 SA	1155	NCR
DC power supply	Keysight	E36103A	MY55350020	February 9, 2018
Signal Generator	Rohde & Schwarz	SME06	837633\001	May 16, 2018
BI-Directional Coupler	WERLATONE	C8060-102	3423	February 12, 2018
Peak and Average Power Sensor	Keysight	E9323A	MY55440013	February 12, 2018
Peak and Average Power Sensor	Keysight	E9323A	MY55420006	February 12, 2018
Dual Channel PK Power Meter	Keysight	N1912A	MY55416024	February 12, 2018
Amplifier	CORAD TECHNOLOGY LTD	AMF-4D-00400600-50-30P	1983561	NCR
Dosimetric E-Field Probe	SPEAG	EX3DV4	7383	December 12, 2017
Data Acquisition Electronic	SPEAG	DAE3	427	December 8, 2017
Dipole Kit 750 MHz	SPEAG	D750V3	1153	January 14, 2019
Software	SPEAG	DASY52	N/A	NCR
Twin Phantom	SPEAG	SAM V5.0	1805	NCR
Thermometer	Control Company	4242	150709653	February 12, 2018
Thermometer	VICTOR	VC230	/	February 12, 2018

Note:
1) Per KDB865664D01 v01r04 requirements for dipole calibration, the test laboratory has adopted three-year extended calibration interval. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.
a) There is no physical damage on the dipole;
b) System check with specific dipole is within 10% of calibrated value;
c) The most recent return-loss result, measured at least annually, deviates by no more than 20% from the previous measurement.
d) The most recent measurement of the real or imaginary parts of the impedance, measured at least annually is within 5Ω from the previous measurement.
2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

5. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std. 1528-2013 is not required in SAR reports submitted for equipment approval.

6. Device Under Test (DUT) Information

6.1. DUT Description

The EUT is a handheld vitalsigns monitoring system with WCDMA/LTE radio, IEEE 802.11b/g/n, Bluetooth radio.	
Battery Options	2500mAh 3.7V (Rechargeable Li-ion Battery)
Accessory	None
Hardware version	(manufacturer declare)H.VS.MSM8909.02
Software version	(manufacturer declare)Visiocheck_1.0.6
Antenna Type	Internal antenna

6.2. Wireless Technology

Wireless technologies	Frequency bands
W-CDMA (UMTS)	Band II
LTE	FDD Band II FDD Band IV FDD Band VII FDD Band XII
WIFI	2.4 GHz
BT	2.4 GHz

7. RF Exposure Conditions (Test Configurations)

Per FCC KDB 447498D01:

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following:

a) {[Power allowed at numeric threshold for 50 mm in step a)] + [(test separation distance – 50 mm)·(f(MHz)/150)]} mW, at 100 MHz to 1500 MHz

b) {[Power allowed at numeric threshold for 50 mm in step a)] + [(test separation distance – 50 mm)·10]} mW at > 1500 MHz and ≤ 6 GHz

Antennas to adjacent sides <50mm

Position	Frequency	Power (dBm)	Power (mW)	Separation Distance (mm)	Calculation Result	Threshold	SAR Test
Front surface	700	23.50	223.87	5.00	37.46	3.0	Required
Back surface	700	23.50	223.87	5.00	37.46	3.0	Required
Left side	700	23.50	223.87	5.00	37.46	3.0	Required
Right side	700	23.50	223.87	5.00	37.46	3.0	Required
Top side	700	23.50	223.87	>50	\	\	\
Bottom side	700	23.50	223.87	5.00	37.46	3.0	Required

Antennas to adjacent sides >50mm

Position	Frequency	Power (dBm)	Power (mW)	Power allowed at 50mm	Separation Distance (mm)	Calculation Result	SAR Test
Front surface	700	23.50	223.87	179.28	<50	\	\
Back surface	700	23.50	223.87	179.28	<50	\	\
Left side	700	23.50	223.87	179.28	<50	\	\
Right side	700	23.50	223.87	179.28	<50	\	\
Top side	700	23.50	223.87	179.28	150.00	645.95	Excluded
Bottom side	700	23.50	223.87	179.28	<50	\	\

8. Dielectric Property Measurements & System Check

8.1. Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized.
The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.
Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

Tissue Dielectric Parameters

FCC KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

IEEE Std. 1528-2013
Refer to Table 3 within the IEEE Std. 1528-2013

Dielectric Property Measurements Results:

Liquid	Freq.	Liquid Parameters				Delta(%)		Limit (%)	Temp. (℃)	Test Date
		Measured		Target						
		ϵ_r	σ	ϵ_r	σ	ϵ_r	σ			
Body 750	705	54.96	0.93	55.71	0.96	-1.35	-3.12	±5	22.1	April 26, 2017
	710	54.89	0.94	55.69	0.96	-1.44	-2.53	±5		
	750	53.99	0.97	55.53	0.96	-2.77	0.69	±5		

8.2. System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm (above 1GHZ) and 15mm (below 1GHz) from dipole center to the simulating liquid surface.
- For area scan, standard grid spacing for head measurements is 15 mm in x- and y- dimension (≤2GHz), 12 mm in x- and y-dimension (2-4 GHz) and 10mm in x- and y- dimension (4-6GHz).
- For zoom scan, Δx_{zoom}, Δy_{zoom}≤ 2GHz - ≤8mm, 2-4GHz - ≤5 mm and 4-6 GHz-≤4mm; Δz_{zoom} ≤3GHz - ≤5 mm, 3-4 GHz- ≤4mm and 4-6GHz-≤2mm.
- Distance between probe sensors and phantom surface was set to 3 mm except for 5 GHz band. For 5GHz band, Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was set to 100 mW or 250 mW depend on the certificate of the dipoles.
- The results are normalized to 1 W input power.

System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

System Dipole Serial #	T.S. Liquid		Measured Results: Zoom Scan (W/Kg)	Measured Results: Normalize to 1W (W/Kg)	Target (Ref. value)	Delta (%)	Limit (%)	Temp. (℃)	Test Date
1153	Body 750	1-g	2.16	8.64	8.73	-1.03	±10	22.5	April 26, 2017
		10-g	1.42	5.68	5.76	-1.39	±10	22.5	

9. LTE Test Configuration

SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices. The CMW500 WideBand Radio Communication Tester was used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR test were performed with the same number of RB and RB offsets transmitting on all TTI frames(Maximum TTI)

1) Spectrum Plots for RB configurations

A properly configured base station simulator was used for LTE output power measurements and SAR testing. Therefore, spectrum plots for RB configurations were not required to be included in this report.

2) MPR

When MPR is implemented permanently within the UE, regardless of network requirements, only those RB configurations allowed by 3GPP for the channel bandwidth and modulation combinations may be tested with MPR active. Configurations with RB allocations less than the RB thresholds required by 3GPP must be tested without MPR.

The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

3) A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by using Network Signaling Value of “NS_01”on the base station simulator.

10. Conducted Output Power Measurement

10.1. Power measurement result of LTE Band XII

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				23017	23095	23173
1.4MHz	QPSK	1	0	22.90	22.82	22.77
		1	3	22.81	22.81	22.82
		1	5	23.03	22.72	22.70
		3	0	21.91	21.82	21.50
		3	2	21.92	21.71	21.59
		3	3	21.88	21.75	21.57
		6	0	21.83	21.91	22.16
	16QAM	1	0	22.66	22.84	22.42
		1	3	22.90	22.80	22.56
		1	5	22.72	22.59	22.43
		3	0	22.22	22.15	22.30
		3	2	22.26	22.19	22.37
		3	3	22.17	22.09	22.33
		6	0	20.85	20.70	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				23025	23095	23165
3MHz	QPSK	1	0	22.83	23.01	22.77
		1	7	22.88	22.89	22.72
		1	14	22.99	22.94	23.01
		7	0	21.93	21.88	21.87
		7	4	21.93	21.93	21.88
		7	7	21.76	21.92	21.85
		15	0	21.81	21.82	21.81
	16QAM	1	0	22.62	22.60	22.52
		1	7	22.48	22.58	22.29
		1	14	22.39	22.63	22.76
		7	0	21.04	20.79	20.91
		7	4	21.06	20.71	20.96
		7	7	20.97	20.80	20.92
		15	0	20.85	20.75	20.58
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				23035	23095	23155
5MHz	QPSK	1	0	22.80	22.70	22.72
		1	13	22.72	22.73	22.53
		1	24	22.80	23.03	22.80
		12	0	21.83	21.87	21.75
		12	6	21.75	21.82	21.63
		12	13	21.81	21.91	21.74
		25	0	21.82	21.84	21.71

	16QAM	1	0	22.05	21.63	21.98
		1	13	21.42	21.58	21.33
		1	24	21.78	22.06	21.91
		12	0	20.63	20.86	20.70
		12	6	20.57	20.86	20.49
		12	13	20.54	20.69	20.56
		25	0	20.87	20.87	20.68
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				23060	23095	23130
10MHz	QPSK	1	0	22.76	22.72	**23.16**
		1	25	22.51	22.80	23.13
		1	49	23.08	22.88	22.81
		25	0	21.84	21.83	**21.95**
		25	13	21.67	21.91	21.90
		25	25	21.87	21.87	21.86
		50	0	21.87	21.84	21.88
	16QAM	1	0	22.53	21.87	22.58
		1	25	22.12	22.33	22.63
		1	49	22.70	22.67	22.26
		25	0	20.72	20.64	20.78
		25	13	20.55	20.58	20.74
		25	25	20.71	20.70	20.69
		50	0	20.83	20.80	20.84

11. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

KDB 447498 D01 General RF Exposure Guidance:

A）Per KDB447498 D01 v06, all SAR measurement results are scaled to the maximum tune-up tolerance limit to demonstrate SAR compliance.

B）Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz.
- ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
- ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz.

Per KDB865664 D01 v01r04:

For each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/Kg; if the deviation among the repeated measurement is ≤ 20%, and the measured SAR <1.45W/Kg, only one repeated measurement is required.

KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

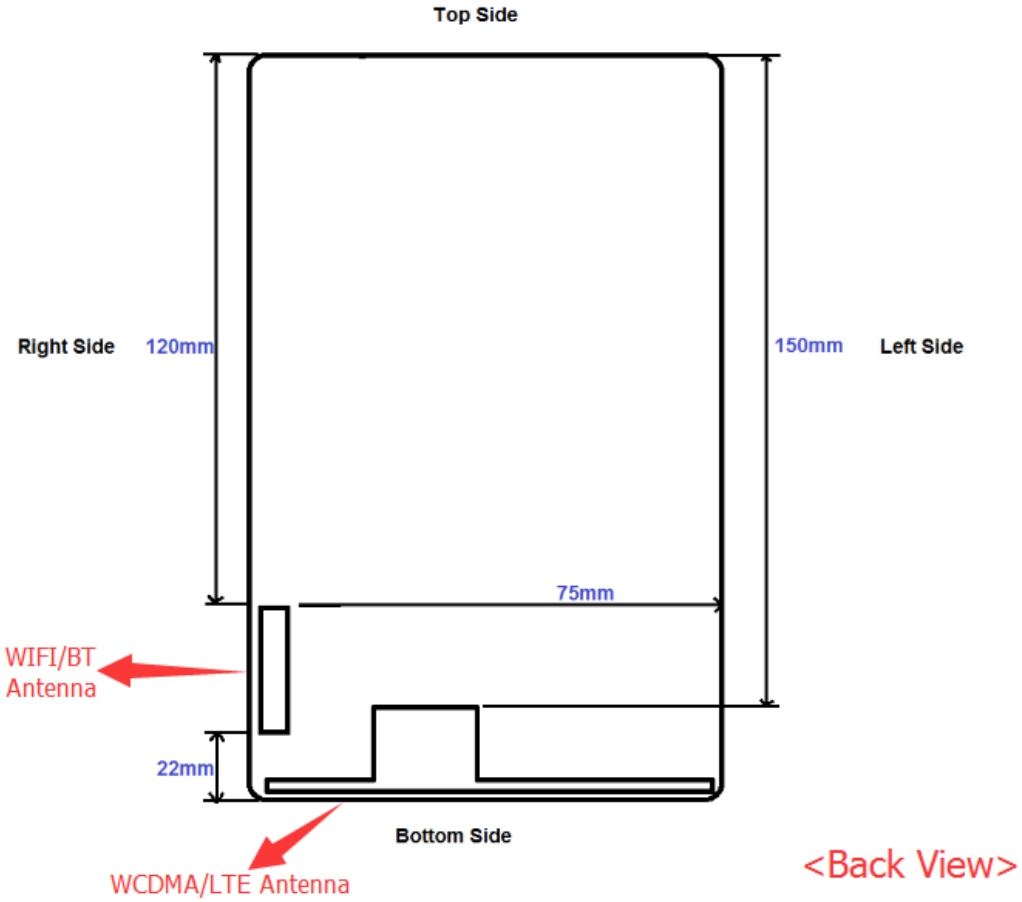
- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.
- When the reported SAR is > 0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
- Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg.
- Testing for 16-QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.
- Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.
- For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing; therefore, the requirement for H, M and L channels may not fully apply.

11.1. LTE Band XII

Test Position (Body 5mm)	Test Mode	Channel/ Frequency	Power (dBm)		SAR Value		Power Drift	Scaled 10g (W/Kg)
			Tune-up	Meas.	1g (W/Kg)	10g (W/Kg)		
1RB								
Front surface	10M QPSK 1RB#0	23130/711	23.50	23.16	0.455	0.300	0.07	0.492
Back surface	10M QPSK 1RB#0	23130/711	23.50	23.16	0.087	0.061	-0.14	0.094
Left side	10M QPSK 1RB#0	23130/711	23.50	23.16	0.096	0.040	-0.07	0.104
Right side	10M QPSK 1RB#0	23130/711	23.50	23.16	0.069	0.050	-0.19	0.075
Bottom side	10M QPSK 1RB#0	23130/711	23.50	23.16	0.066	0.040	0.01	0.071
50%RB								
Front surface	10M QPSK 50%RB#0	23130/711	22.50	21.95	0.349	0.228	0.17	0.396
Back surface	10M QPSK 50%RB#0	23130/711	22.50	21.95	0.067	0.051	0.06	0.076
Left side	10M QPSK 50%RB#0	23130/711	22.50	21.95	0.055	0.039	-0.07	0.063
Right side	10M QPSK 50%RB#0	23130/711	22.50	21.95	0.053	0.038	-0.11	0.060
Bottom side	10M QPSK 50%RB#0	23130/711	22.50	21.95	0.047	0.029	-0.17	0.054

12. Simultaneous Transmission SAR Analysis

The location of the antennas inside BW-X07HD is shown as below picture:



Note:
1. Per KDB 941225 D07, because the diagonal Length is <200mm, it is considered a “UMPC Mini-Tablet” device and need to test 5mm 1g Body SAR.
2. Simultaneous Transmission calculation can be found on report: EED32I00251309.

Appendixes

Refer to separated files for the following appendixes.

4787997676.1_App A Photo

4787997676.1_App B System Check Plots

4787997676.1_App C Highest Test Plots

4787997676.1_App D Cal. Certificates

END OF REPORT