



Prüfbericht-Nr.: <i>Test report No.:</i>	50052935 002	Auftrags-Nr.: <i>Order No.:</i>	164069063	Seite 1 von 31 Page 1 of 31
Kunden-Referenz-Nr.: <i>Client reference No.:</i>	N/A	Auftragsdatum: <i>Order date.:</i>	14.07.2016	
Auftraggeber: <i>Client:</i>	ContextMedia LLC 330 N. Wabash Ave STE 2500, Chicago, Illinois United States.			
Prüfgegenstand: <i>Test item:</i>	Wallboard 32" Tablet			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	P-WAL-106-ELC-XX (XX equals to 00, 01, 02, 03...99) (ContextMedia Health)			
Auftrags-Inhalt: <i>Order content:</i>	FCC and IC approval			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209 RSS-247 Issue 1 May 2015 RSS-Gen Issue 4 November 2014			
Wareneingangsdatum: <i>Date of receipt:</i>	21.07.2016	Please refer to photo documents		
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000395547-002			
Prüfzeitraum: <i>Testing period:</i>	27.07.2016 - 11.08.2016			
Ort der Prüfung: <i>Place of testing:</i>	Accurate Technology Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
 09.08.2016 Andy Yan / Project Manager		 09.08.2016 Owen Tian / Technical Certifier		
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>
				Unterschrift <i>Signature</i>
Sonstiges / Other:				
FCC ID: 2A16X-PWALELC IC: 21722-PWALELC HVIN: P-WAL-106-ELC-01, P-WAL-106-ELC-02, P-WAL-106-ELC-03 All the Identification no. are identical in the hardware and electronic aspects with each other. All the HVIN no. are identical in the hardware and electronic aspects with each other, the difference is only color apperance.				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged:</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhalt P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY

RESULT: Pass

5.1.4 6dB BANDWIDTH

RESULT: Pass

5.1.5 99% BANDWIDTH

RESULT: Pass

5.1.6 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH

RESULT: Pass

5.1.7 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.8 20dB BANDWIDTH

RESULT: Pass

5.1.9 CARRIER FREQUENCY SEPARATION

RESULT: Pass

5.1.10 NUMBER OF HOPPING FREQUENCY

RESULT: Pass

5.1.11 TIME OF OCCUPANCY

RESULT: Pass

5.1.12 CONDUCTED EMISSION ON AC MAINS

RESULT: Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix B: Test Results of Bluetooth 4.1 (Dual mode) of Conducted Testing

Appendix C: Test Results of Bluetooth 4.1 (Dual mode) of AC Conducted and Radiated Emission

2 Test Sites

2.1 Test Facilities

Accurate Technology Co., Ltd.

F1, Bldg. A, Changyuan New Material Port Keyuan Rd., Science & Industry Park, Nanshan Shenzhen, 518057, P.R. China

FCC Registration No.: 752051

Test site Industry Canada No.: 5077A-2

The tests at the test sites have been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Accurate Technology Co., Ltd.

Radio Spectrum Test				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Spectrum Analyzer	R&S	ESPI3	100396/003	09.01.2017
Spurious Emission				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Spectrum Analyzer	R&S	FSV40	101495	09.01.2017
Test Receiver	R&S	ESCS30	100307	09.01.2017
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	14.01.2017
Loop Antenna	Schwarzbeck	FMZB1516	1516131	14.01.2017
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	14.01.2017
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	14.01.2017
RF Switching Unit+PreAMP	Compliance Direction	RSU-M2	38322	09.01.2017
Pre-Amplifier	R&S	CBLU11835 40-01	3791	09.01.2017
50 Coaxial Switch	Anritsu Corp	MP59B	6200506474	09.01.2017
RF Coaxial Cable	SUHNER	N-3m	No.8	09.01.2017
RF Coaxial Cable	RESENBERGER	N-3.5m	No.9	09.01.2017
RF Coaxial Cable	SUHNER	N-6m	No.10	09.01.2017
RF Coaxial Cable	RESENBERGER	N-12m	No.11	09.01.2017
50_ Coaxial Switch	Anritsu Corp	MP59B	6200283933	09.01.2017
Conducted Emission on AC Mains				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Test Receiver	R&S	ESCS30	100307	09.01.2017
L.I.S.N.	R&S	NLSK8126	8126431	09.01.2017
50Ω Coaxial Switch	Anritsu	MP59B	6200283933	09.01.2017

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 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 basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table

Item		Extended Uncertainty
Conducted Emission		± 3.0 dB
Radiated Emission (9kHz-30MHz)	Field strength (dBµV/m)	U=3.08dB, k=2, σ=95%
Radiated Emission (30-1000MHz)	Field strength (dBµV/m)	U=4.42dB, k=2, σ=95%
Radiated Emission (above 1000MHz)	Field strength (dBµV/m)	U=4.06dB, k=2, σ=95%
Occupied Channel Bandwidth		±5.0 %
RF Output Power, Conducted		±1.5 dB
Power Spectral Density, Conducted		±3.0 dB
Unwanted Emission, Conducted		±3.0 dB
Duty Cycle		±5.0 %

2.6 Location of Original Data

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

2.7 Status of Facility Used for Testing

The Accurate Technology Co., Ltd. Test facility located at F1, Bldg. A, Changyuan New Material Port Keyuan Rd., Science & Industry Park, Nanshan Shenzhen, 518057, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a Wallboard 32" Tablet which supports Bluetooth (dual mode) and Wi-Fi 802.11 a/b/g/n/ac wireless technology. This report is only for Bluetooth function of DTS and DSS. Other functions with different technologies are reported in the related reports.

According to the declaration of the applicant, the electrical circuit design, PCB layout and components used are identical for all models, only the model No. and appearance are different.

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

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

Technical Specification	Value
Kind of Equipment	Wallboard 32" Tablet
Type Designation	P-WAL-106-ELC-XX (XX equals to 00, 01, 02, 03...99)
Trade Mark	ContextMedia Health
FCC ID	2AI6X-PWALELC
IC	21722-PWALELC
HVIN	P-WAL-106-ELC-01, P-WAL-106-ELC-02, P-WAL-106-ELC-03
Operating Frequency	2402 - 2480 MHz
Operating Temperature Range	0 °C ~ +40 °C
Operating Voltage	DC 12 V from AC/DC Adapter
Testing Voltage	DC 12 V from AC/DC Adapter with input 120V/60Hz
AC/DC Adapter	Model: FJ-SW1205000 Input: AC 100-240V~50/60Hz 1.5A Output: DC 12.0V~5000mA
Type of Modulation	GFSK, $\pi/4$ DQPSK, 8DPSK
Channel Number	BDR & EDR mode:79 channels; Low Energy mode:40 channels
Channel Separation	BDR & EDR mode:1MHz; Low Energy mode:2MHz
Wireless Technology	Bluetooth 4.0 (Dual mode)
Antenna Type	Integral Antenna
Max. Antenna Gain	2.00 dBi

Table 3: RF Channel and Frequency of Bluetooth

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
00	2402.00	20	2422.00	40	2442.00	60	2462.00
01	2403.00	21	2423.00	41	2443.00	61	2463.00
02	2404.00	22	2424.00	42	2444.00	62	2464.00
03	2405.00	23	2425.00	43	2445.00	63	2465.00
04	2406.00	24	2426.00	44	2446.00	64	2466.00
05	2407.00	25	2427.00	45	2447.00	65	2467.00
06	2408.00	26	2428.00	46	2448.00	66	2468.00
07	2409.00	27	2429.00	47	2449.00	67	2469.00
08	2410.00	28	2430.00	48	2450.00	68	2470.00
09	2411.00	29	2431.00	49	2451.00	69	2471.00
10	2412.00	30	2432.00	50	2452.00	70	2472.00
11	2413.00	31	2433.00	51	2453.00	71	2473.00
12	2414.00	32	2434.00	52	2454.00	72	2474.00
13	2415.00	33	2435.00	53	2455.00	73	2475.00
14	2416.00	34	2436.00	54	2456.00	74	2476.00
15	2417.00	35	2437.00	55	2457.00	75	2477.00
16	2418.00	36	2438.00	56	2458.00	76	2478.00
17	2419.00	37	2439.00	57	2459.00	77	2479.00
18	2420.00	38	2440.00	58	2460.00	78	2480.00
19	2421.00	39	2441.00	59	2461.00	--	--

Table 4: RF Channel and Frequency of Bluetooth Low Energy

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
00	2402.00	10	2422.00	20	2442.00	30	2462.00
01	2404.00	11	2424.00	21	2444.00	31	2464.00
02	2406.00	12	2426.00	22	2446.00	32	2466.00
03	2408.00	13	2428.00	23	2448.00	33	2468.00
04	2410.00	14	2430.00	24	2450.00	34	2470.00
05	2412.00	15	2432.00	25	2452.00	35	2472.00
06	2414.00	16	2434.00	26	2454.00	36	2474.00
07	2416.00	17	2436.00	27	2456.00	37	2476.00
08	2418.00	18	2438.00	28	2458.00	38	2478.00
09	2420.00	19	2440.00	29	2460.00	39	2480.00

Table 5: Frequency Hopping Information

Technical Specification	Description
Hopping Range	Hereby we declare that the frequency range of this device is: 2402-2480MHz. This is according the Bluetooth Core Specification V2.1 + EDR for devices which will be operated in the USA. This was checked during the Bluetooth Qualification tests (Test Case: TRM/CA/04-E).
Hopping Sequence	Example of a 79 hopping sequence in data mode: 33,04,21,44,23,42,53,46,55,48,40,59,72,29,76,31,08,73,07,75,09,45,60,39,58,13,47,11,77,52,35,50,65,54,67,56,69,62,71,64, 7,25,27,66,57,70,74,61,78,63,10,41,05,43,15,44,64,68,02,70,06,01,51,03,55,05,03,66,53,49,36,47,
Receiver input bandwidth	<p>The input bandwidth of the receiver is 1MHz. In every connection one Bluetooth device is the master and the other one is the slave. The master determines the hopping sequence. The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master.</p> <p>Additionally the type of connection is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also the slave of the connection will use these settings.</p> <p>Repeating of a packer has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case.</p> <p>That means a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.</p>

3.3 Independent Operation Modes

The basic operation modes are:

- A. On
 - 1. Bluetooth transmitting mode (BDR & EDR mode)
 - a) Low Channel
 - b) Middle Channel
 - c) High Channel
 - 2. Bluetooth transmitting mode (Low Energy mode)
 - a) Low Channel
 - b) Middle Channel
 - c) High Channel
- B. On, Transmitting on Hopping channel
- C. On, Bluetooth connecting mode

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- | | |
|-------------------------|----------------------------------|
| - Application Form | - FCC/IC Label and Location Info |
| - Block Diagram | - Photo Document |
| - Schematics | - User Manual |
| - Technical Description | |

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.10: 2013.

4.3 Special Accessories and Auxiliary Equipment

Table 6: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Adapter 1	FUJIA	FJ-SW1205000	N/A	Input: 100-240V~, 50/60Hz, 1.5A Output: DC 12.0V, 5.0A
Adapter 2	Mass Power	NBS65A120500B 3	N/A	Input: 100-240V~, 50/60Hz, 1.5A Output: DC 12.0V, 5.0A
Notebook PC	Lenovo	ThinkPad X240	N/A	N/A
Printer	HP	HP laserjet 1015	CNFG030424	N/A

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

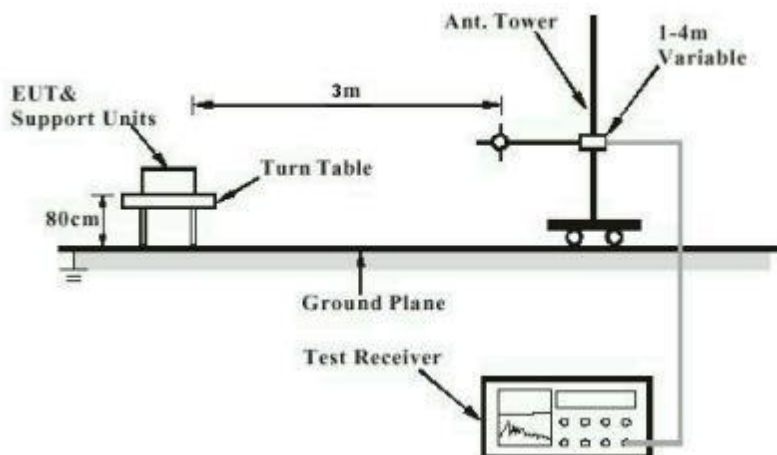


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

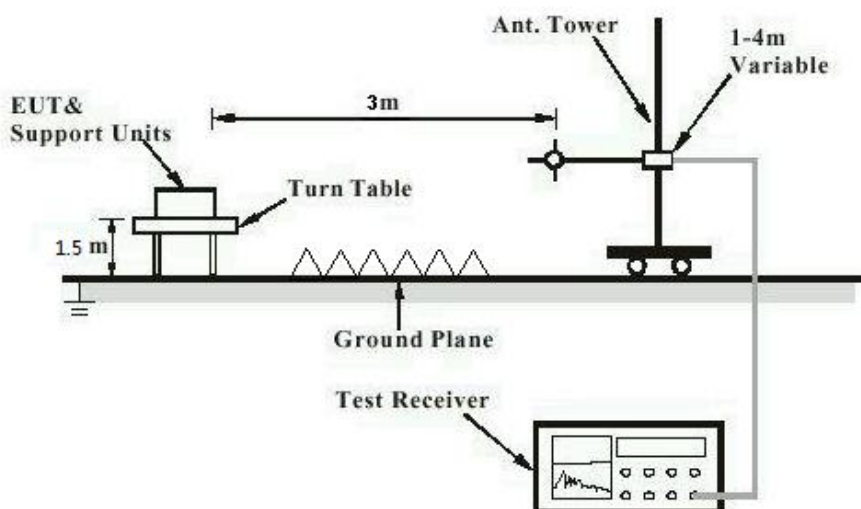


Diagram of Measurement Configuration for Mains Conduction Measurement

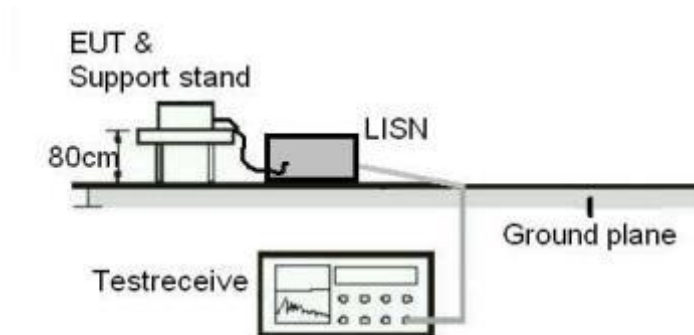
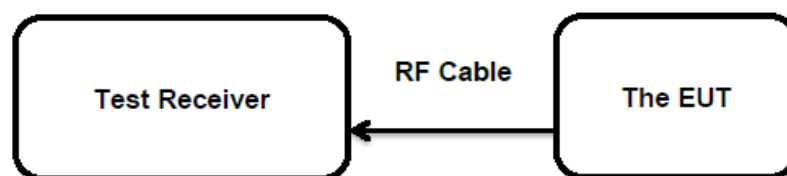


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:**Pass****Test Specification**

Test standard : FCC Part 15.247(b)(4) and Part 15.203
RSS-Gen Clause 8.3

According to the manufacturer declared, the EUT has an integral antenna, the directional gain of antenna is 2.0dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

5.1.2 Maximum Peak Conducted Output Power

RESULT:
Pass
Test Specification

Test standard : FCC Part 15.247(b)(1)&(3)
RSS-247 Clause 5.4(2)&(4)

Basic standard : ANSI C63.10: 2013

Limits : FHSS < 0.125 Watts, DSSS < 1.0 Watts

Kind of test site : Shielded Room

Test Setup

Date of testing : 27.07.2016 ~ 29.07.2016

Input voltage : DC 12 V from AC/DC Adapter with input 120V/60Hz

Operation mode : A.1, A.2

Test channel : Low / Middle / High

Ambient temperature : 25 °C

Relative humidity : 56 %

Atmospheric pressure : 101 kPa

Table 7: Test Result of Maximum Peak Conducted Output Power

Test Mode	Channel Frequency (MHz)	Measured Peak Output Power		Limit (W)
		(dBm)	(W)	
BDR	2402	5.07	0.00321	< 0.125
	2441	8.25	0.00668	
	2480	6.17	0.00414	
EDR	2402	3.64	0.00231	< 0.125
	2441	7.29	0.00536	
	2480	4.99	0.00316	
Low Energy	2402	-1.35	0.00073	< 1.0
	2440	2.30	0.00170	
	2480	1.54	0.00143	
Maximum Measured Value		8.25	0.00668	/

Note: The cable loss 2.0 dB is taken into account in results.

This testing was carried out on all operation modes, but only the worst case was presented in this report.

For the measurement records, refer to the appendix B.

5.1.3 Conducted Power Spectral Density

RESULT:**Pass****Test Specification**

Test standard : FCC Part 15.247(e)
RSS-247 Clause 5.2(2)
Basic standard : ANSI C63.10: 2013
Limits : 8 dBm/3kHz
Kind of test site : Shielded Room

Test Setup

Date of testing : 27.07.2016
Input voltage : DC 12 V from AC/DC Adapter with input 120V/60Hz
Operation mode : A.2
Test channel : Low / Middle / High
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

Table 8: Test Result of Power Spectral Density, Low Energy

Test Mode	Test Channel (MHz)	Power Spectrum Density(dBm/3kHz)	Limit (dBm/3kHz)
Low Energy	2402	-15.63	< 8.0
	2440	-11.97	
	2480	-12.66	
Maximum Measured Value		-11.97	

Note: The cable loss 2.0 dB is taken into account in results.

This testing was carried out on all operation modes, but only the worst case was presented in this report.

For the measurement records, refer to the appendix B.

5.1.4 6dB Bandwidth

RESULT:**Pass****Test Specification**

Test standard : FCC Part 15.247(a)(2)
RSS-247 Clause 5.2(1)
Basic standard : ANSI C63.10: 2013
Limits : More than 500 KHz
Kind of test site : Shielded Room

Test Setup

Date of testing : 27.07.2016
Input voltage : DC 12 V from AC/DC Adapter with input 120V/60Hz
Operation mode : A.2
Test channel : Low / Middle / High
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

Table 9: Test Result of 6dB Bandwidth, Low Energy

Test Mode	Test Channel (MHz)	-6dB Bandwidth (kHz)	Limit (kHz)
Low Energy	2402	738.10	> 500
	2440	738.10	
	2480	738.10	
Minimum Measured Value		738.10	

For the measurement records, refer to the appendix B.

5.1.5 99% Bandwidth

RESULT:
Pass
Test Specification

Test standard : RSS-Gen Clause 6.6
Basic standard : ANSI C63.10: 2013
Kind of test site : Shielded Room

Test Setup

Date of testing : 27.07.2016 ~ 29.07.2016
Input voltage : DC 12 V from AC/DC Adapter with input 120V/60Hz
Operation mode : A.1, A.2
Test channel : Low / Middle / High
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

Table 10: Test Result of 99% Bandwidth

Test Mode	Channel Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)
BDR	2402	994.2	/
	2441	998.6	
	2480	998.6	
EDR	2402	1228.7	/
	2441	1228.7	
	2480	1228.7	
Low Energy	2402	1081.0	/
	2440	1085.4	
	2480	1085.4	
Maximum Measured Value		1228.7	/

For the measurement records, refer to the appendix B.

5.1.6 Conducted Spurious Emissions Measured in 100 kHz Bandwidth**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.247(d) RSS-247 Clause 5.5
Basic standard	: ANSI C63.10: 2013
Limits	: 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power);
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 27.07.2016 ~ 29.07.2016
Input voltage	: DC 12 V from AC/DC Adapter with input 120V/60Hz
Operation mode	: A.1, A.2
Test channel	: Low / Middle / High
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to following test plot, and compliance is achieved as well.

For the measurement records, refer to the appendix B.

5.1.7 Radiated Spurious Emission

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(d) & FCC Part 15.205 RSS-247 Clause 3.3
Basic standard	: ANSI C63.10: 2013
Limits	: Refer to 15.209(a) of FCC part 15.247(d) RSS-Gen Table 4 & Table 5
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 03.08.2016 ~ 11.08.2016
Input voltage	: DC 12 V from AC/DC Adapter with input 120V/60Hz
Operation mode	: A.1, A.2
Test channel	: Low / Middle / High
Ambient temperature	: 23 °C
Relative humidity	: 48 %
Atmospheric pressure	: 101 kPa

Remark:

During the pretest the EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions. After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation shown in the test set-up photos.

Pre-test the EUT in continuous transmitting with different data packet. Compliance test in continuous transmitting mode with BDR mode (DH5) as the worst case was found.

Testing was carried out within frequency range 9kHz to the tenth harmonics.

For the measurement records, refer to the appendix C.

5.1.8 20dB Bandwidth

RESULT:
Pass
Test Specification

Test standard : FCC Part 15.247(a)(1)
RSS-247 Clause 5.1(1)

Basic standard : ANSI C63.10: 2013

Kind of test site : Shielded Room

Test Setup

Date of testing : 29.07.2016

Input voltage : DC 12 V from AC/DC Adapter with input 120V/60Hz

Operation mode : A.1

Test channel : Low / Middle / High

Ambient temperature : 25 °C

Relative humidity : 56 %

Atmospheric pressure : 101 kPa

Table 11: Test Result of 20dB Bandwidth

Test Mode	Channel Frequency (MHz)	20dB Bandwidth (kHz)	2/3 of 20dB Bandwidth (kHz)	Limit (MHz)
BDR	2402	1037.7	691.8	Within the Frequency band 2400~2483.5MHz
	2441	1037.6	691.7	
	2480	1037.6	691.7	
EDR	2402	1328.5	885.7	
	2441	1328.5	885.7	
	2480	1328.5	885.7	
Maximum Measured Value		1328.5	885.7	

For the measurement records, refer to the appendix B.

5.1.9 Carrier Frequency Separation

RESULT:
Pass
Test Specification

Test standard : FCC Part 15.247(a)(1)
RSS-247 Clause 5.1(2)

Basic standard : ANSI C63.10: 2013

Limits : $\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth, whichever is greater

Kind of test site : Shielded Room

Test Setup

Date of testing : 29.07.2016

Input voltage : DC 12 V from AC/DC Adapter with input 120V/60Hz

Operation mode : B

Test channel : Low / Middle / High

Ambient temperature : 25 °C

Relative humidity : 56 %

Atmospheric pressure : 101 kPa

Table 12: Test Result of Carrier Frequency Separation

Channel	Channel Frequency (MHz)	Measured Channel Separation (KHz)	Limit (kHz)	Result
Low Channel	2402	1002.9	≥ 25kHz or 2/3 of 20dB bandwidth	Pass
Adjacency Channel	2403			
Middle Channel	2441	1002.9		Pass
Adjacency Channel	2442			
High Channel	2480	1002.9		Pass
Adjacency Channel	2479			

Note:

The limit is maximum $2/3$ of the 20 dB bandwidth: 885.7 KHz.

For the measurement records, refer to the appendix B.

5.1.10 Number of Hopping Frequency**RESULT:****Pass****Test Specification**

Test standard : FCC part 15.247(a)(1)(iii)
RSS-247 Clause 5.1(4)
Basic standard : ANSI C63.10: 2013
Limits : ≥ 15 non-overlapping channels
Kind of test site : Shielded Room

Test Setup

Date of testing : 29.07.2016
Input voltage : DC 12 V from AC/DC Adapter with input 120V/60Hz
Operation mode : B
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

Table 13: Test Result of Number of Hopping Frequency

Frequency Range	Measured Quantity of Hopping Channel	Limit	Result
2402 to 2480 MHz	79	≥ 15	Pass

For the measurement records, refer to the appendix B.

5.1.11 Time of Occupancy**RESULT:****Pass****Test Specification**

Test standard : FCC part 15.247(a)(1)(iii)
RSS-247 Clause 5.1(4)
Basic standard : ANSI C63.10: 2013
Limits : < 0.4s
Kind of test site : Shielded Room

Test Setup

Date of testing : 29.07.2016
Input voltage : DC 12 V from AC/DC Adapter with input 120V/60Hz
Operation mode : B
Test channel : Low / Middle / High
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

Table 14: Test Result of Time of Occupancy

Test Mode	Test Channel	Data Packet	Pulse width (ms)	Measured Dwell time(s)	Limit (s)
BDR mode	2402	DH1	0.442	0.141	< 0.4s
		DH3	1.703	0.272	
		DH5	2.986	0.319	
	2441	DH1	0.442	0.141	
		DH3	1.688	0.270	
		DH5	2.964	0.316	
	2480	DH1	0.442	0.141	
		DH3	1.688	0.270	
		DH5	2.964	0.316	
EDR mode	2402	3DH1	0.442	0.141	
		3DH3	1.703	0.272	
		3DH5	2.986	0.319	
	2441	3DH1	0.442	0.141	
		3DH3	1.703	0.272	
		3DH5	2.986	0.319	
	2480	3DH1	0.442	0.141	
		3DH3	1.688	0.270	
		3DH5	2.986	0.319	
Maximum Measured Value			2.986	0.319	

Note:

Dwell time = Pulse width x (Hopping rate / Number of channels) x Period

Period = 0.4 x 79 (channel) = 31.6 seconds

This testing was carried out on all operation modes, but only the worst case was presented in this report.

For the measurement records, refer to the appendix B.

5.1.12 Conducted Emission on AC Mains**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.207(a) RSS-Gen Clause 8.8
Basic standard	: ANSI C63.10: 2013
Frequency range	: 0.15 – 30MHz
Limits	: FCC Part 15.207(a) RSS-Gen Table 3
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 10.08.2016
Input voltage	: DC 12 V from AC/DC Adapter with input 120V/60Hz
Operation mode	: C
Earthing	: Not connected
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix C.

6 Safety Human Exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

RESULT:**Pass****Test Specification**

Test standard : CFR47 FCC Part 2.1093
RSS-102 Issue 5 March 2015

Measurement Record:

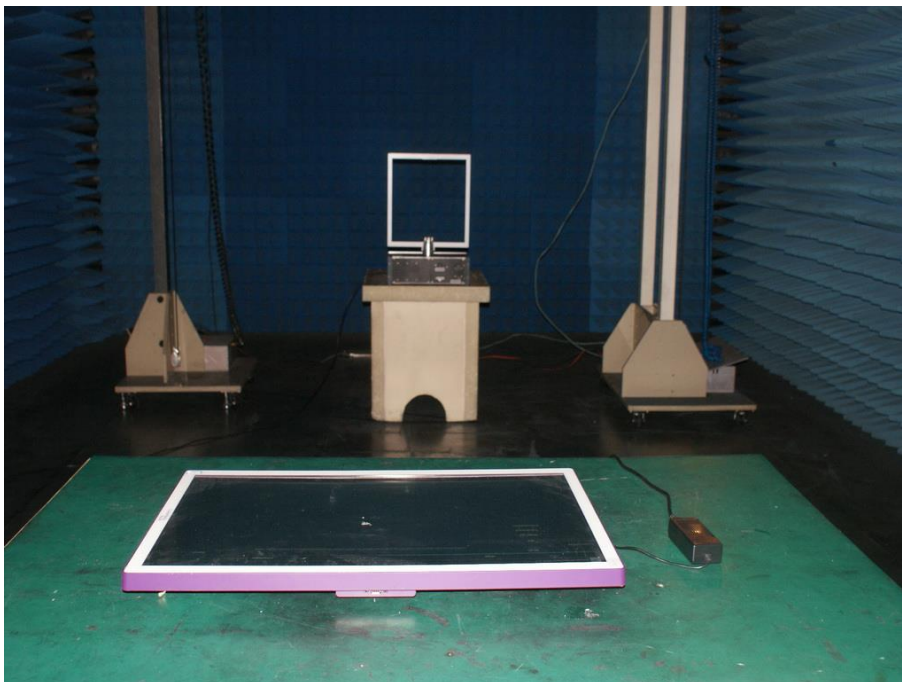
For the measurement records, refer to the sar report with report no.: 50052935 005

7 Photographs of the Test Set-Up

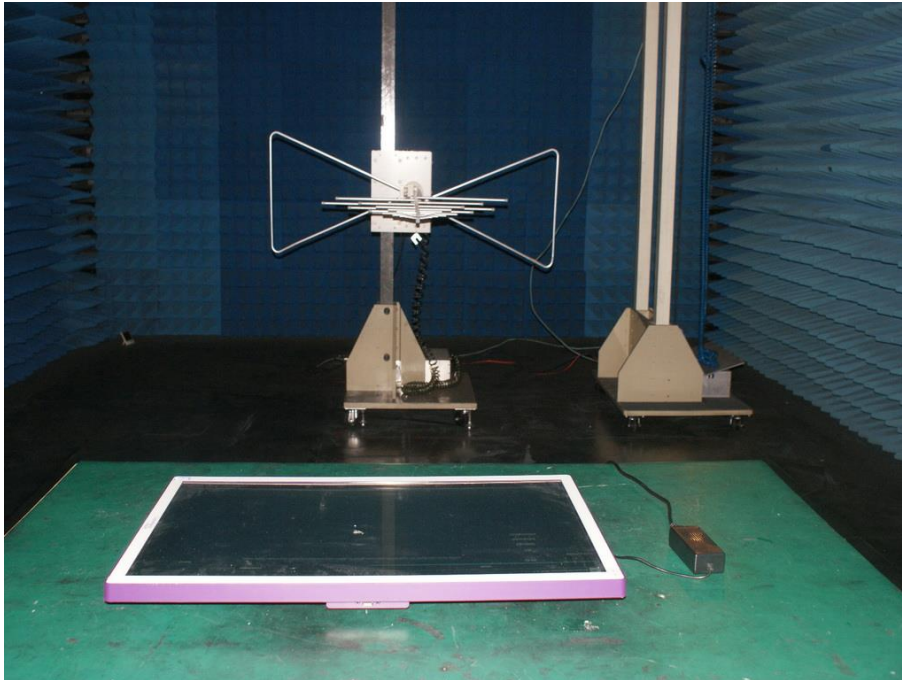
Photograph 1: Set-up for Radio Spectrum Test



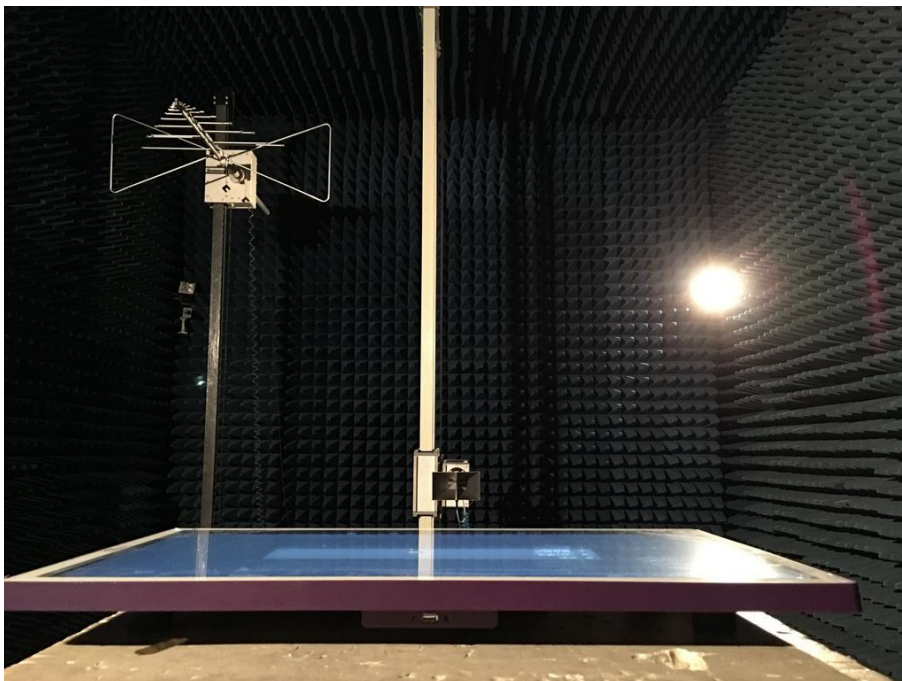
Photograph 2: Set-up for Radiated Spurious Emission (9kHz ~ 30MHz)



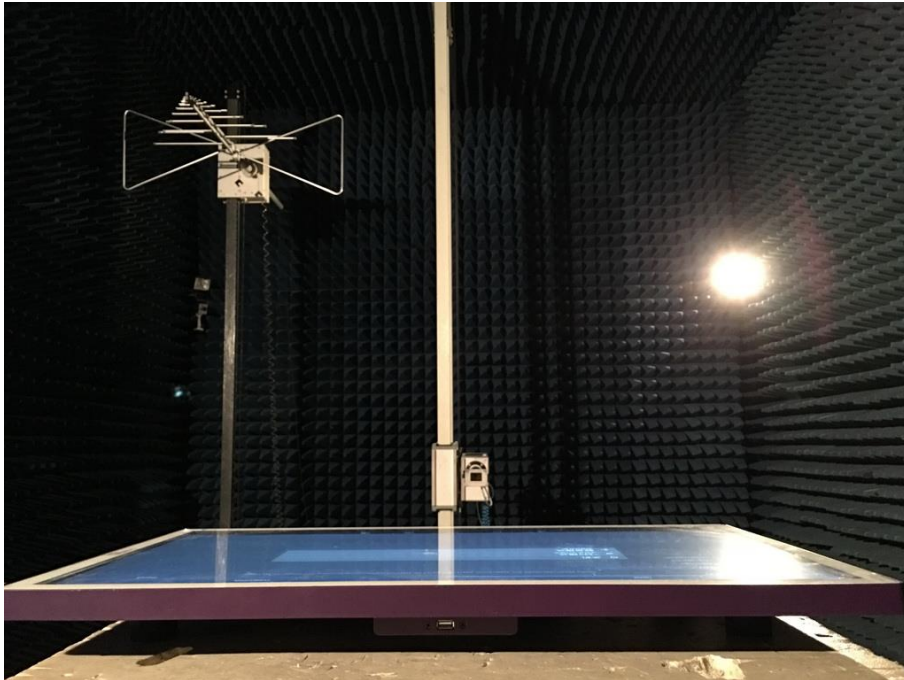
Photograph 3: Set-up for Radiated Spurious Emission (30MHz~1GHz)



Photograph 4: Set-up for Radiated Spurious Emission (1GHz ~ 18GHz)



Photograph 5: Set-up for Radiated Spurious Emission (18GHz ~ 26GHz)



Photograph 6: Set-up for Conducted Emission on AC Mains



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