



Prüfbericht-Nr.: <i>Test report No.:</i>	50124112 001	Auftrags-Nr.: <i>Order No.:</i>	164117606	Seite 1 von 25 Page 1 of 25	
Kunden-Referenz-Nr.: <i>Client reference No.:</i>	N/A	Auftragsdatum: <i>Order date.:</i>	12.01.2018		
Auftraggeber: <i>Client:</i>	Binatone Electronics International Ltd. Floor 23A, 9 Des Voeux Road West, Sheung Wan, Hong Kong				
Prüfgegenstand: <i>Test item:</i>	Over-the -Crib Wi-Fi® monitor and sleep companion (Parent Unit)				
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	MBP944CONNECTPU (Trademark: motorola)				
Auftrags-Inhalt: <i>Order content:</i>	FCC and IC approval				
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 RSS-247 Issue 2 February 2017 CFR47 FCC Part 15: Subpart C Section 15.207 RSS-Gen Issue 4 November 2014 CFR47 FCC Part 15: Subpart C Section 15.209 RSS-102 Issue 5 March 2015 CFR47 FCC Part 2: Section 2.1091				
Wareneingangsdatum: <i>Date of receipt:</i>	12.01.2018	Please refer to photo documents			
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000656845-003 to 005				
Prüfzeitraum: <i>Testing period:</i>	12.01.2018 - 07.02.2018				
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Guangdong) Ltd.				
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Guangdong) Ltd.				
Prüfergebnis*: <i>Test result*:</i>	Pass				
geprüft von / tested by:		kontrolliert von / reviewed by:			
 19.03.2018 Storm Shu / Project Manager		 19.03.2018 Amy Wang / 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: VLJ-MBP944PU IC: 4522A-MBP944PU HVIN: MBP944CONNECTPU					
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 = mangelhaft 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 99% BANDWIDTH

RESULT: Pass

5.1.4 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH

RESULT: Pass

5.1.5 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.6 20dB BANDWIDTH

RESULT: Pass

5.1.7 CARRIER FREQUENCY SEPARATION

RESULT: Pass

5.1.8 NUMBER OF HOPPING FREQUENCY

RESULT: Pass

5.1.9 TIME OF OCCUPANCY

RESULT: Pass

5.1.10 CONDUCTED EMISSION ON AC MAINS

RESULT: Pass

6.1.1 ELECTROMAGNETIC FIELDS

RESULT: Pass

Contents

1	GENERAL REMARKS	5
1.1	COMPLEMENTARY MATERIALS	5
2	TEST SITES	5
2.1	TEST FACILITIES	5
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS.....	6
2.3	TRACEABILITY	7
2.4	CALIBRATION	7
2.5	MEASUREMENT UNCERTAINTY.....	7
2.6	LOCATION OF ORIGINAL DATA.....	7
2.7	STATUS OF FACILITY USED FOR TESTING.....	7
3	GENERAL PRODUCT INFORMATION	8
3.1	PRODUCT FUNCTION AND INTENDED USE.....	8
3.2	RATINGS AND SYSTEM DETAILS	8
3.3	INDEPENDENT OPERATION MODES	9
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS.....	9
3.5	SUBMITTED DOCUMENTS.....	9
4	TEST SET-UP AND OPERATION MODES	10
4.1	PRINCIPLE OF CONFIGURATION SELECTION	10
4.2	TEST OPERATION AND TEST SOFTWARE.....	10
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT.....	10
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	10
4.5	TEST SETUP DIAGRAM	11
5	TEST RESULTS	13
5.1	TRANSMITTER REQUIREMENT & TEST SUITES	13
5.1.1	<i>Antenna Requirement</i>	<i>13</i>
5.1.2	<i>Maximum Peak Conducted Output Power</i>	<i>14</i>
5.1.3	<i>99% Bandwidth</i>	<i>15</i>
5.1.4	<i>Conducted Spurious Emissions Measured in 100 kHz Bandwidth</i>	<i>16</i>
5.1.5	<i>Radiated Spurious Emission</i>	<i>17</i>
5.1.6	<i>20dB Bandwidth</i>	<i>18</i>
5.1.7	<i>Carrier Frequency Separation</i>	<i>19</i>
5.1.8	<i>Number of Hopping Frequency</i>	<i>20</i>
5.1.9	<i>Time of Occupancy</i>	<i>21</i>
5.1.10	<i>Conducted Emission on AC Mains</i>	<i>22</i>
6	SAFETY HUMAN EXPOSURE	23
6.1	RADIO FREQUENCY EXPOSURE COMPLIANCE	23
6.1.1	<i>Electromagnetic Fields</i>	<i>23</i>
7	PHOTOGRAPHS OF THE TEST SET-UP	25

8	LIST OF TABLES.....	25
---	---------------------	----

1 General Remarks

1.1 Complementary Materials

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

Appendix A: Photographs of the Test Set-up

Appendix B: Test Results of General 2.4GHz wireless

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Guangdong) Ltd.

No.102, 1F of Southwest and No.205, 2F No.767 Tianyuan Road, Tianhe District, Guangzhou 510663,
Guangdong Province P.R. China

FCC Accreditation Designation No.: CN1207

Test site Industry Canada No.: 2932C-1

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

TÜV Rheinland (Guangdong) Ltd.

Radio Spectrum Testing				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Spectrum Analyzer	R & S	FSP30	100286	15.03.2018
Spurious Emission				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
EMI Test Receiver	R & S	ESCI-3	100216	17.09.2018
Spectrum Analyzer	R & S	FSP30	100286	15.03.2018
Loop Antenna	R & S	HFH2-Z2 (<30MHz)	100111	13.03.2019
Trilog-Broadband Antenna	Schwarzbeck	VULB9168 (30MHz-1GHz)	684	19.09.2019
Double-Ridged Waveguide Horn Antenna	R & S	HF907 (1-18GHz)	100377	26.10.2018
Standard Gain Horn Antenna	EMCO	3160-09 (18-26.5GHz)	21642	28.07.2019
Pre-amplifier	MITEQ	AFS33-18002650-30-8P-44 (1-18GHz)	1108282	19.07.2019
Band Reject Filter	Micro-Tronics	BRM50702	023	06.07.2018
Conducted Emission on AC Mains				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
EMI Test Receiver	R & S	ESCI-3	100314	11.04.2018
Two-Line V-Network	R & S	ESV216	100195	11.04.2018
Pulse Limiter	R & S	ESH3-Z2	100701	15.05.2018

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		± 2.68 dB
Radiated Emission (30-1000MHz)	Field strength (dBμV/m)	± 5.16 dB
Radiated Emission (above 1000MHz)	Field strength (dBμV/m)	± 2.22 dB
Radio Spectrum		± 4.51 dB

2.6 Location of Original Data

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

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Guangdong) Ltd. Test facility located at No.102, 1F of Southwest and No.205, 2F No.767 Tianyuan Road, Tianhe District, Guangzhou 510663, Guangdong Province 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 EUTs are Over-the -Crib Wi-Fi® monitor and sleep companion system which consist of a baby unit and a parent unit, the baby unit supports Wi-Fi 802.11 b/g/n and general 2.4GHz wireless technologies, and the parent unit only supports general 2.4GHz wireless technology.

The parent unit is supplied by external adapters and battery, see below table for details:

Test EUT	Parent Unit		Supplier
	Supported	Tested	
Adapter #1 (S012BEU0500150)	☒	☒	Tenpao
Adapter #2 (CS12N050150FUF)	☒	☒	CSEC
Battery #1 (BL253)	☒	☒	Lenovo

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

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	Over-the -Crib Wi-Fi® monitor and sleep companion (Parent Unit)
Type Designation	MBP944CONNECTPU
Trade Mark	motorola
FCC ID	VLJ-MBP944PU
IC	4522A-MBP944PU
HVIN	MBP944CONNECTPU
Operating Voltage	DC 5.0V@1500mA input via AC/DC adapter DC 3.8V@2000mAh input via internal Li-ion battery
Testing Voltage	AC 120V, 60Hz
AC/DC Adapter #1	Model: S012BEU0500150 Input: AC 100-240V~50/60Hz, 500mA Output: DC 5.0V@1500mA
AC/DC Adapter #2	Model: CS12N050150FUF Input: AC 100-240V~50/60Hz, 500mA Output: DC 5.0V@1500mA
Battery #1	Model: BL253 DC 3.8V@2000mAh/7.6Wh Li-ion battery(Rated capacity) DC 3.8V@2050mAh/7.8Wh Li-ion battery(Typical capacity)

Technical Specification of General 2.4GHz	
Operating Frequency	2402 - 2477 MHz
Type of Modulation	FSK
Channel Number	22 channels
Channel Separation	2 MHz / 5 MHz
Antenna Type	Integral Antenna
Gain	0 dBi

Table 3: RF Channel and Frequency of General 2.4GHz

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
01	2402	07	2420	13	2450	19	2471
02	2404	08	2425	14	2455	20	2473
03	2406	09	2430	15	2460	21	2475
04	2408	10	2435	16	2465	22	2477
05	2410	11	2440	17	2467	/	/
06	2415	12	2445	18	2469	/	/

Test frequencies are lowest channel: 2402 MHz, middle channel: 2440 MHz and highest channel: 2477 MHz for General 2.4GHz

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, General 2.4GHz wireless transmitting mode
 - 1. Low channel
 - 2. Middle channel
 - 3. High channel
- B. On, Transmitting on hopping channel
- C. On, Normal operation with general 2.4GHz mode
- D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

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

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 tests were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model MBP944CONNECTPU in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 4: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Notebook	Lenovo	ThinkPad X260	PC0DZSKR	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)

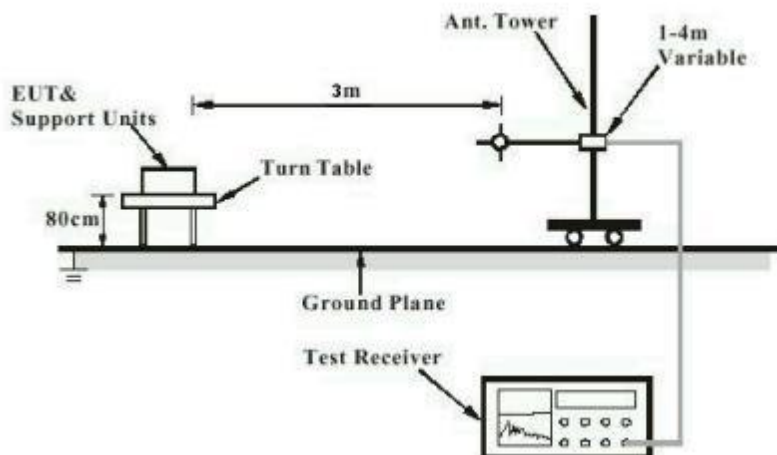


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

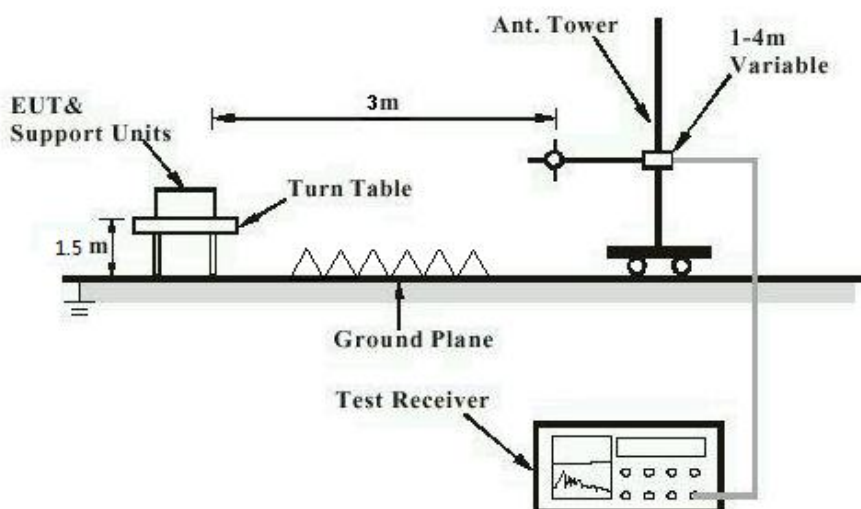


Diagram of Measurement Configuration for Mains Conduction Measurement

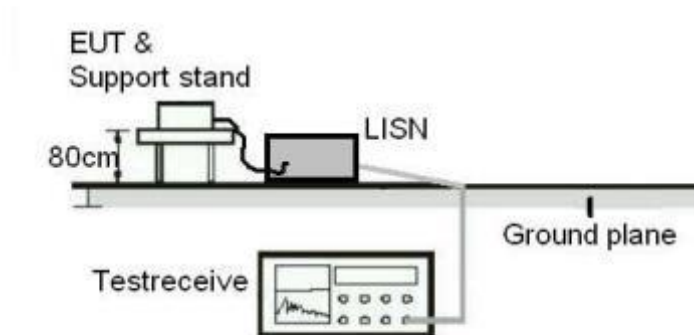
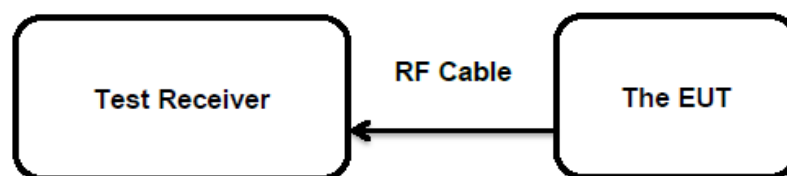


Diagram of Measurement Configuration for Conducted Transmitter Measurement



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

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is 0 dBi, 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.

The Maximum peak conducted output power (e.i.r.p.)= $P_{(\text{Peak power})} + G$, which is far below the 4 W

5.1.3 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 : 07.02.2018
Input voltage : AC 120V, 60Hz
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 6: Test Result of 99% Bandwidth, General 2.4GHz

Test Mode	Test Channel (MHz)	99% Bandwidth (MHz)	Limit
FHSS	2402	1.52	/
	2440	1.55	
	2477	1.55	
Maximum Measured Value		1.55	

5.1.4 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); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 22.01.2018
Input voltage	: AC 120V, 60Hz
Operation mode	: A
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 test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix B.

5.1.5 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 Issue 4 Table 4
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: Refer to test result
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 22 °C
Relative humidity	: 53 %
Atmospheric pressure	: 101 kPa

Remark:

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix B.

5.1.6 20dB Bandwidth

RESULT:
Pass
Test Specification

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

Basic standard : ANSI C63.10: 2013

Kind of test site : Shielded Room

Test Setup

Date of testing : 22.01.2018

Input voltage : AC 120V, 60Hz

Operation mode : A

Test channel : Low / Middle / High

Ambient temperature : 25 °C

Relative humidity : 56 %

Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 7: Test Result of 20dB Bandwidth, General 2.4GHz

Test Mode	Test Channel (MHz)	20dB Bandwidth (kHz)	2/3 of 20dB Bandwidth (kHz)	Limit (MHz)
FHSS	2402	1441.60	961.067	/
	2440	1456.50	971.000	
	2477	1444.60	963.067	
Maximum Measured Value		1456.50	971.000	

5.1.7 Carrier Frequency Separation

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(a)(1) RSS-247 Clause 5.1(b)
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	:	22.01.2018
Input voltage	:	AC 120V, 60Hz
Operation mode	:	B
Test channel	:	Low / Middle / High
Ambient temperature	:	25 °C
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

For details refer to following test result.

Table 8: Test Result of Carrier Frequency Separation, General 2.4GHz

Test Mode	Test Channel	Test Channel (MHz)	Measured Channel Separation (KHz)	Limit (kHz)
FHSS	Low Channel	2402	2007.0	≥ 25kHz or 2/3 of 20dB bandwidth
	Adjacency Channel	2404		
	Middle Channel	2440	5005.0	
	Adjacency Channel	2435		
	High Channel	2477	2000.0	
	Adjacency Channel	2475		

Note: The limit is maximum 2/3 of the 20 dB bandwidth: 971.000 KHz.

For the measurement records, refer to the appendix B.

5.1.8 Number of Hopping Frequency

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

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

Test Setup

Date of testing : 22.01.2018
Input voltage : AC 120V, 60Hz
Operation mode : B
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 9: Test Result of Number of Hopping Frequency, General 2.4GHz

Test Mode	Frequency Range	Measured Quantity of Hopping Channel	Limit
FHSS	2402 - 2477 MHz	22	≥ 15

For the measurement records, refer to the appendix B.

5.1.9 Time of Occupancy

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

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

Test Setup

Date of testing : 24.01.2018
Input voltage : AC 120V, 60Hz
Operation mode : B
Test channel : Low / Middle / High
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 10: Test Result of Time of Occupancy, General 2.4GHz

Test Mode	Test Channel (MHz)	Pulse Width(ms)	Number of Channels	Measured Dwell Time(s)	Limit (s)
FHSS	2402	0.210	120	0.025	0.4s
	2440	0.210	120	0.025	
	2477	0.200	120	0.024	

Note:

Dwell time = Pulse width x Number of channels in Period

Period = 0.4 (seconds/ channel) x 22 (channel) = 8.8 seconds

For the measurement records, refer to the appendix B.

5.1.10 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	: Refer to test result
Input voltage	: AC 120V, 60Hz
Operation mode	: C
Earthing	: Not connected
Ambient temperature	: 24 °C
Relative humidity	: 53 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

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: Section 2.1091
CFR47 FCC Part 1: Section 1.1310
FCC KDB Publication 447498 D01 v06
FCC KDB Publication 865664 D01 v01r04
FCC KDB Publication 865664 D02 v01r02
RSS-102 Issue 5 March 2015

➤ FCC requirements

FCC requirement: Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20cm normally can be maintained between the user and the device.

MPE Calculation Method according to KDB 865664 D01Power Density: $S_{(mW/cm^2)} = PG/4\pi R^2$ or $EIRP/4\pi R^2$

Where:

S = power density (mW/cm²)

P = power input to the antenna (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 (cm)

The nominal maximum conducted output power specified:

General 2.4GHz: 15.00 dBm

From the peak RF output power, the minimum mobile separation distance, d=20 cm, as well as the antenna gain (Max. 0.0 dBi for General 2.4GHz), the RF power density can be calculated as below:

For General 2.4GHz: $S_{(mW/cm^2)} = PG/4\pi R^2 = 0.006 \text{ mW/cm}^2$ **Limits for Maximum Permissible Exposure (MPE) according to FCC Part 1.1310:**1.0 mW/cm²

➤ **IC requirements:** The EUT shall comply with the requirement of RSS-102 section 2.5.2.

Exemption from Routine Evaluation Limits – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

- RF exposure evaluation exempted power for General 2.4GHz: 2.670 W

The nominal maximum conducted output power specified:

General 2.4GHz: 15.00 dBm

Antenna Gain: 0.0 dBi for General 2.4GHz

The Max. e.i.r.p. for General 2.4GHz: 15.00 dBm = 0.032 W

The e.i.r.p. for General 2.4GHz is less than the RF exposure evaluation exempted power. So RF exposure evaluation is not required.

“RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.”

7 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

8 List of Tables

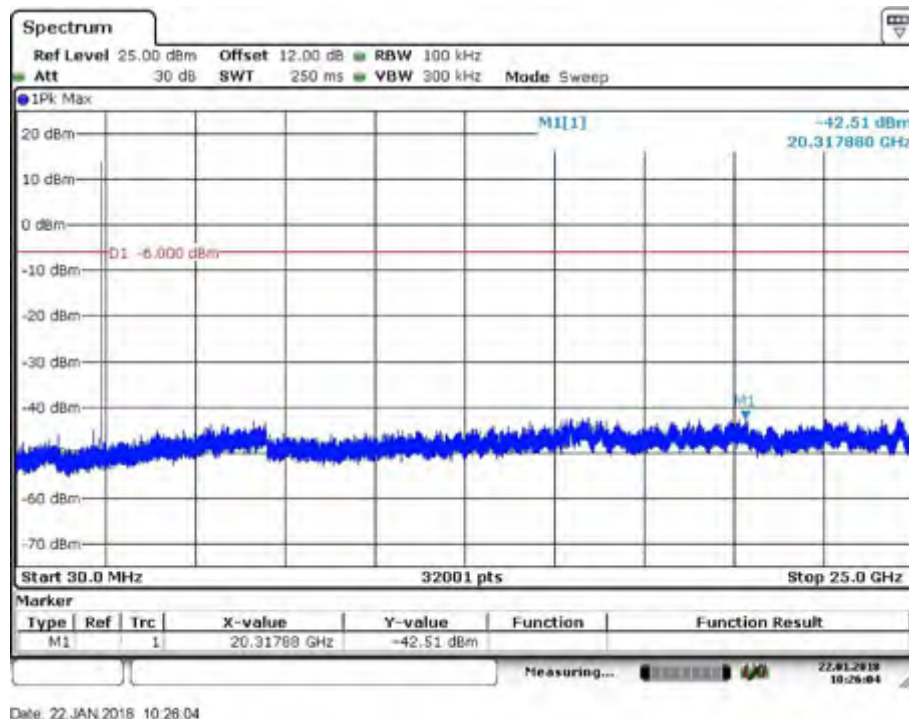
Table 1: List of Test and Measurement Equipment.....	6
Table 2: Technical Specification of EUT	8
Table 3: RF Channel and Frequency of General 2.4GHz	9
Table 4: List of Accessories and Auxiliary Equipment.....	10
Table 5: Test Result of Maximum Peak Conducted Output Power, General 2.4GHz	14
Table 6: Test Result of 99% Bandwidth, General 2.4GHz	15
Table 7: Test Result of 20dB Bandwidth, General 2.4GHz	18
Table 8: Test Result of Carrier Frequency Separation, General 2.4GHz.....	19
Table 9: Test Result of Number of Hopping Frequency, General 2.4GHz.....	20
Table 10: Test Result of Time of Occupancy, General 2.4GHz.....	21

Appendix B: Test Results of General 2.4GHz

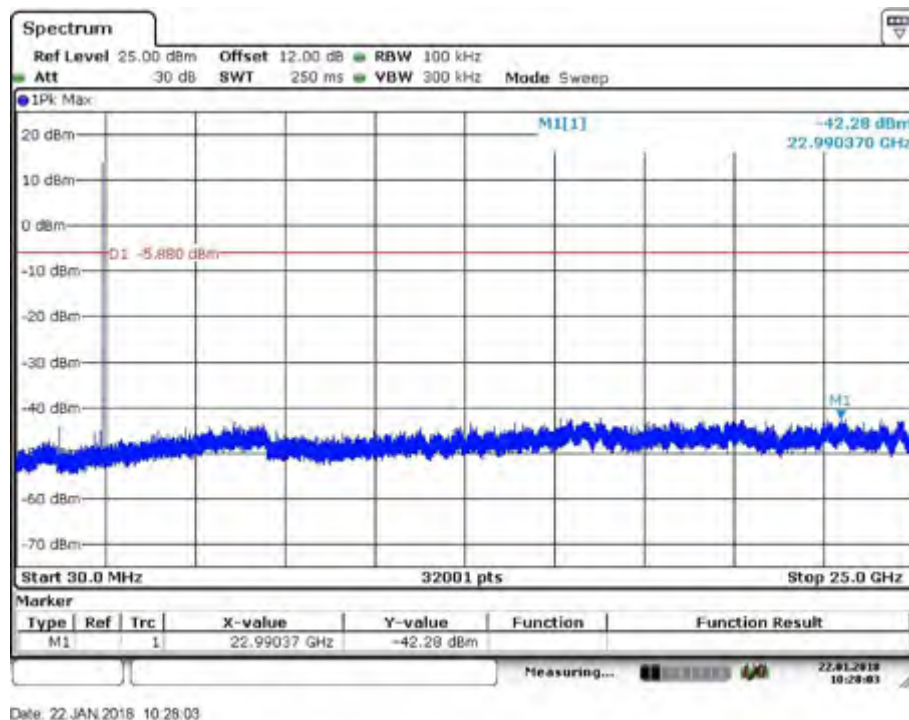
APPENDIX B: TEST RESULTS OF GENERAL 2.4GHZ	1
APPENDIX B.1: CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH.....	2
<i>Low Channel.....</i>	<i>2</i>
<i>Middle Channel.....</i>	<i>2</i>
<i>High Channel.....</i>	<i>3</i>
<i>Band Edge, Low Channel.....</i>	<i>4</i>
<i>Band Edge, High Channel.....</i>	<i>4</i>
<i>Band Edge, Low Channel (Hopping mode).....</i>	<i>5</i>
<i>Band Edge, High Channel (Hopping mode).....</i>	<i>5</i>
APPENDIX B.2: TEST RESULTS OF RADIATED SPURIOUS EMISSIONS	6
30MHz - 1GHz.....	6
1GHz - 18GHz.....	11
APPENDIX B.3: TEST RESULTS OF RADIATED EMISSIONS IN RESTRICTED BANDS	23
<i>Low channel.....</i>	<i>23</i>
<i>High channel.....</i>	<i>25</i>
APPENDIX B.4: TEST RESULTS OF CARRIER FREQUENCY SEPARATION	27
<i>Low channel.....</i>	<i>27</i>
<i>Middle channel</i>	<i>27</i>
<i>High channel.....</i>	<i>28</i>
APPENDIX B.5: TEST RESULTS OF NUMBER OF HOPPING FREQUENCY	29
APPENDIX B.6: TEST RESULTS OF TIME OF OCCUPANCY.....	30
<i>Low channel.....</i>	<i>30</i>
<i>Middle channel</i>	<i>31</i>
<i>High channel.....</i>	<i>32</i>
APPENDIX B.7: TEST RESULTS OF CONDUCTED EMISSION ON AC MAINS.....	33
<i>C mode with adapte #1.....</i>	<i>33</i>
<i>C mode with adapte #2.....</i>	<i>34</i>

Appendix B.1: Conducted Spurious Emissions Measured in 100 kHz Bandwidth

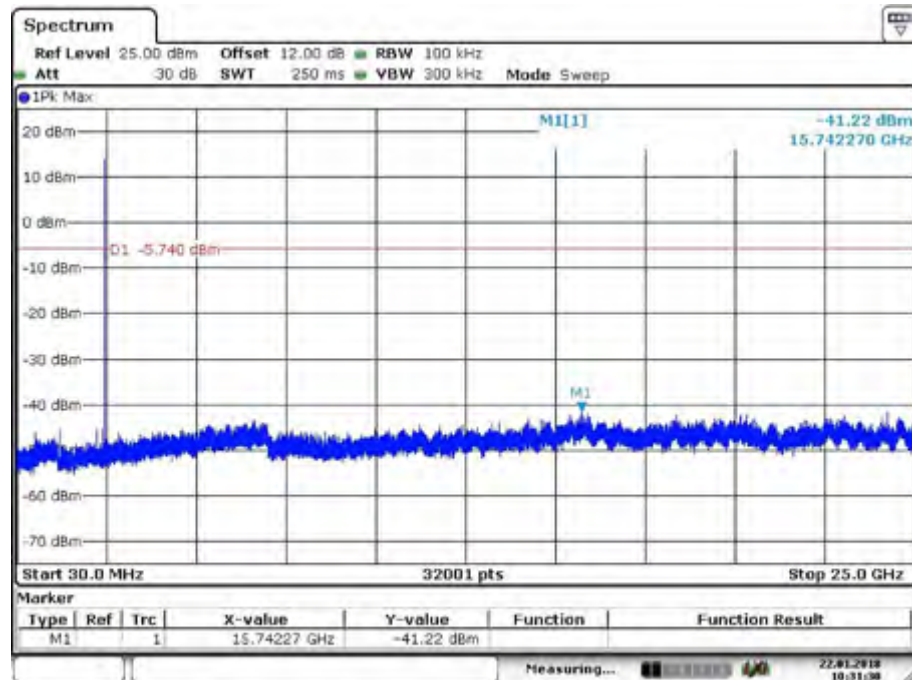
Low Channel



Middle Channel

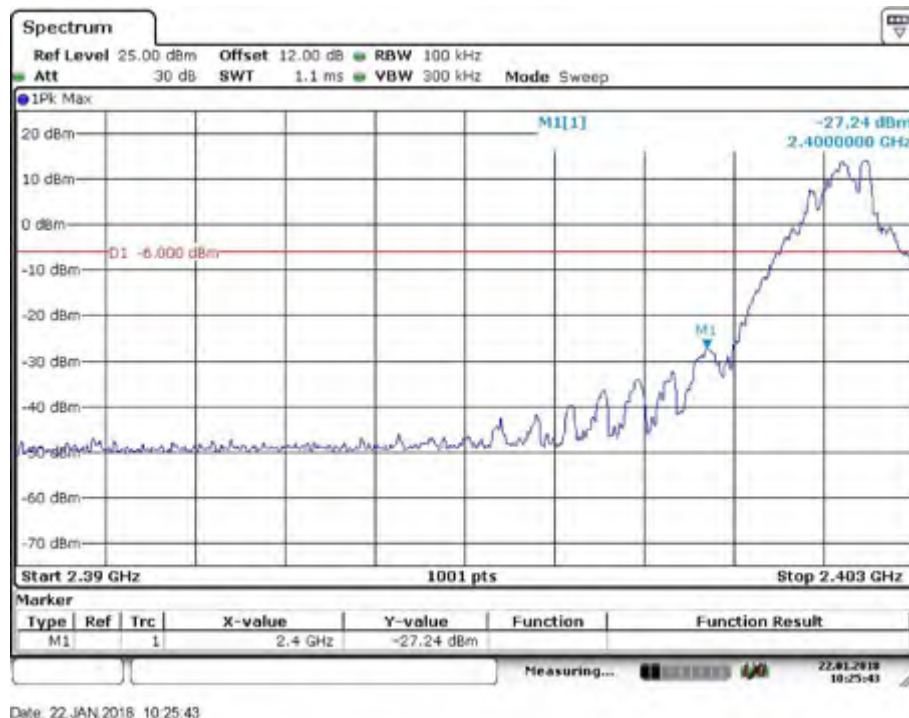


High Channel

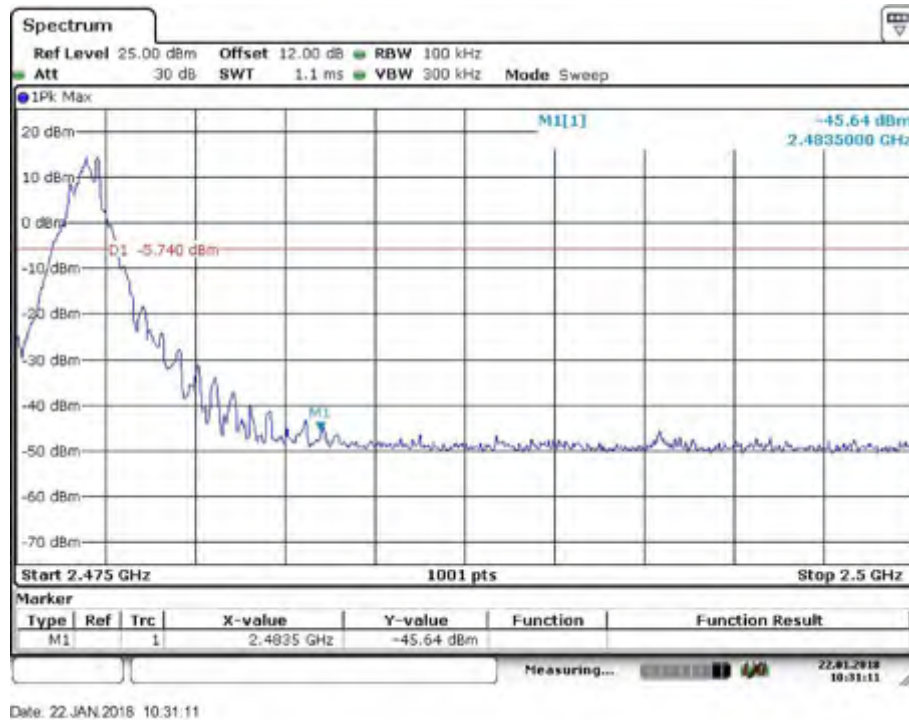


Date: 22.JAN.2018 10:31:30

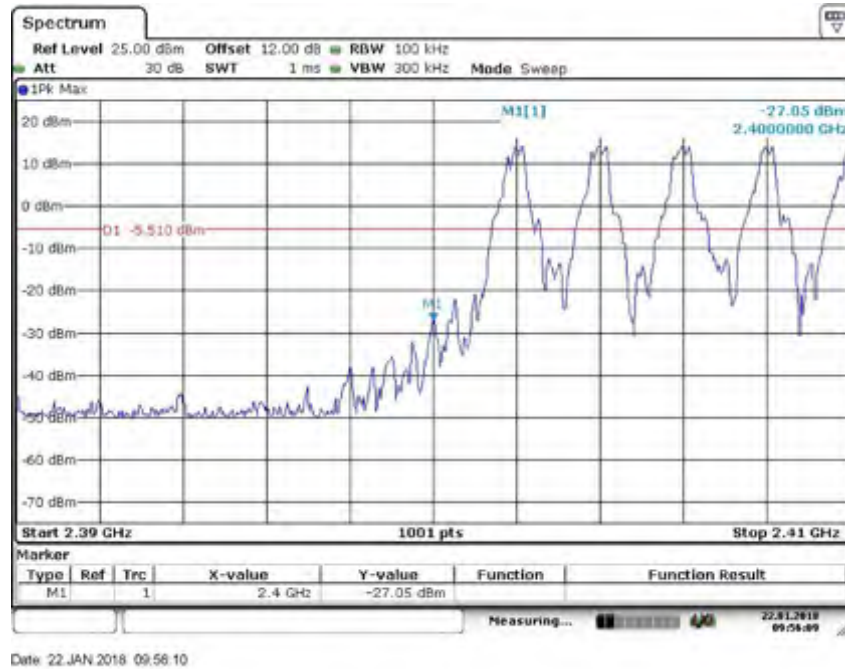
Band Edge, Low Channel



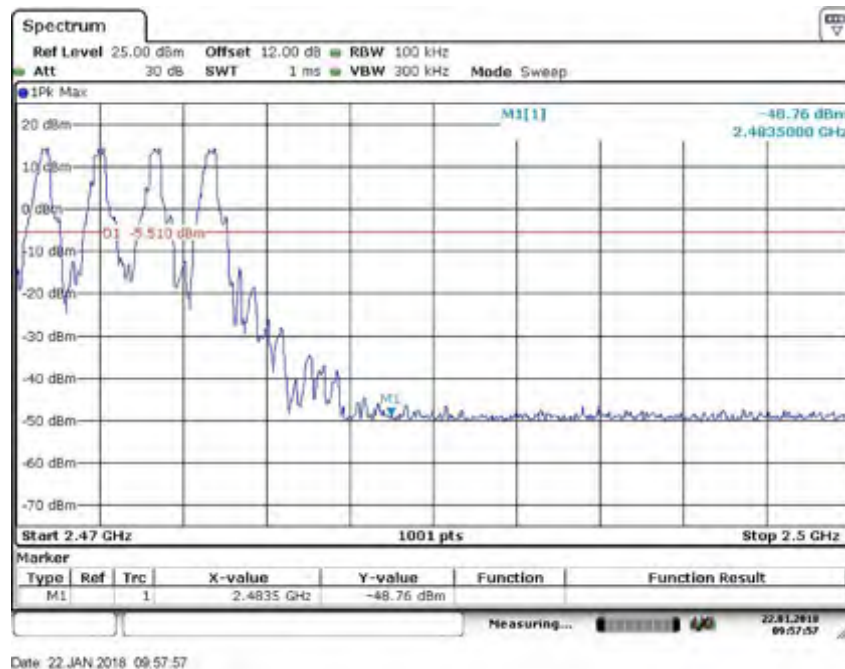
Band Edge, High Channel



Band Edge, Low Channel (Hopping mode)



Band Edge, High Channel (Hopping mode)



Note: Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz -26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

Appendix B.2: Test Results of Radiated Spurious Emissions

30MHz - 1GHz

TUV Rheinland (Guangdong) Ltd.

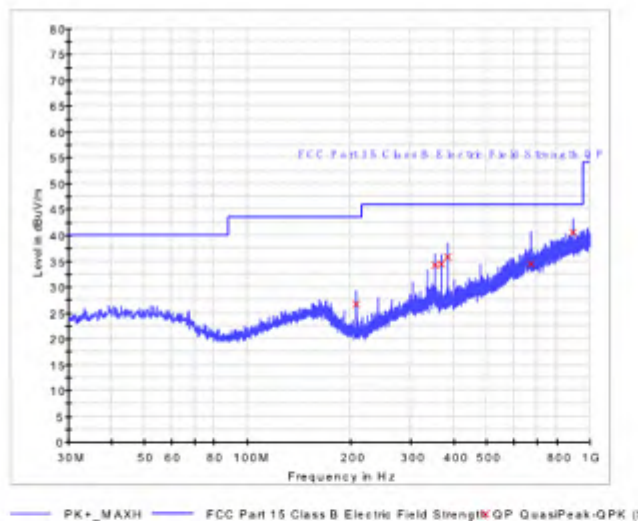
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

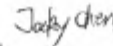
Manufacturer: Binatone
Test Item:
Identification: MBP944CONNECT(Monitor)
Test Standard: FCC Part 15
Test Detail: Radiated Emission
Operation Mode: Transmitting(Low)
Climate Condition: 21 °C, 54 %, 100 kPa
Test Voltage/ Freq: AC 120 V / 60 Hz
Receipt No: 164117606(174078251)
Report No:
Result: Pass
Comment: Test distance is 3m; Horizontal

Subrange 1
Frequency range: 30-1000MHz
Receiver: ESCI 3
Transducer: VULB9168



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)	Comment
208.080000	26.8	1000.0	120.000	H	17.9	16.7	43.5	
352.040000	34.3	1000.0	120.000	H	23.1	11.7	46.0	
368.040000	34.5	1000.0	120.000	H	23.5	11.5	46.0	
384.080000	36.0	1000.0	120.000	H	23.9	10.0	46.0	
672.120000	34.5	1000.0	120.000	H	31.2	11.5	46.0	
894.400000	40.6	1000.0	120.000	H	34.5	5.4	46.0	

Tested by:  Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

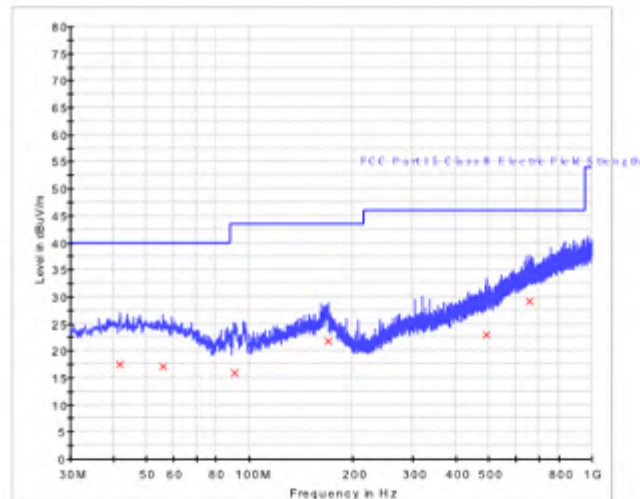
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer: Binatone Telecom Plc
Test Item: MBP944CONNECT(Monitor)
Identification: FCC Part 15
Test Standard: Radiated Emission
Test Detail: Transmitting(Low)
Operation Mode: 21 °C, 54 %, 100 kPa
Climate Condition: AC 120 V / 60 Hz
Test Voltage/ Freq: 164117606(174078251)
Receipt No:
Report No:
Result: Pass
Comment: Test distance is 3m; Vertical

Subrange 1
Frequency range: 30-1000MHz
Receiver: ESCI 3
Transducer: VULB9168



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)	Comment
41.880000	17.4	1000.0	120.000	V	20.7	22.6	40.0	
55.840000	17.0	1000.0	120.000	V	20.3	23.0	40.0	
90.280000	16.0	1000.0	120.000	V	16.4	27.5	43.5	
170.400000	21.7	1000.0	120.000	V	21.0	21.8	43.5	
494.160000	22.9	1000.0	120.000	V	26.6	23.1	46.0	
656.120000	29.1	1000.0	120.000	V	31.5	16.9	46.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

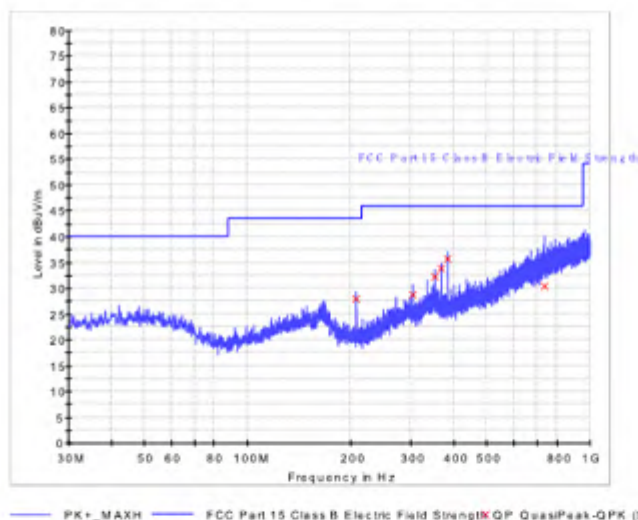
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer: Binatone Telecom Plc
Test Item: MBP944CONNECT(Monitor)
Test Standard: FCC Part 15
Test Detail: Radiated Emission
Operation Mode: Transmitting(Mid)
Climate Condition: 21 °C, 54 %, 100 kPa
Test Voltage/ Freq: AC 120 V / 60 Hz
Receipt No: 164117606(174078251)
Report No:
Result: Pass
Comment: Test distance is 3m; Horizontal

Subrange 1
Frequency range: 30-1000MHz
Receiver: ESCI 3
Transducer: VULB9168



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)	Comment
208.040000	27.9	1000.0	120.000	H	17.9	15.6	43.5	
304.080000	28.9	1000.0	120.000	H	21.8	17.2	46.0	
352.080000	32.3	1000.0	120.000	H	23.1	13.7	46.0	
368.080000	33.9	1000.0	120.000	H	23.5	12.1	46.0	
384.080000	35.7	1000.0	120.000	H	23.9	10.3	46.0	
736.320000	30.4	1000.0	120.000	H	32.2	15.6	46.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

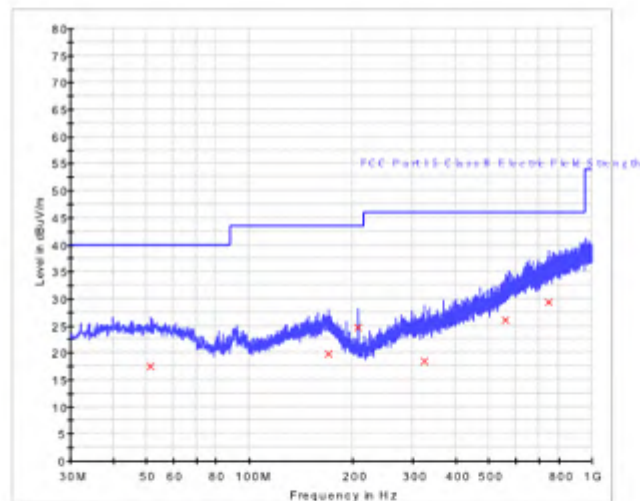
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer: Binatone
Test Item:
Identification: MBP944CONNECT(Monitor)
Test Standard: FCC Part 15
Test Detail: Radiated Emission
Operation Mode: Transmitting(Mid)
Climate Condition: 21 °C, 54 %, 100 kPa
Test Voltage/ Freq: AC 120 V / 60 Hz
Receipt No: 164117606(174078251)
Report No:
Result: Pass
Comment: Test distance is 3m; Vertical

Subrange 1
Frequency range: 30-1000MHz
Receiver: ESCI 3
Transducer: VULB9168



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)	Comment
51.480000	17.6	1000.0	120.000	V	20.6	22.4	40.0	
169.800000	19.9	1000.0	120.000	V	21.0	23.6	43.5	
208.040000	24.7	1000.0	120.000	V	17.9	18.8	43.5	
323.320000	18.4	1000.0	120.000	V	22.3	27.6	46.0	
560.240000	26.0	1000.0	120.000	V	28.6	20.0	46.0	
747.560000	29.4	1000.0	120.000	V	32.5	16.6	46.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

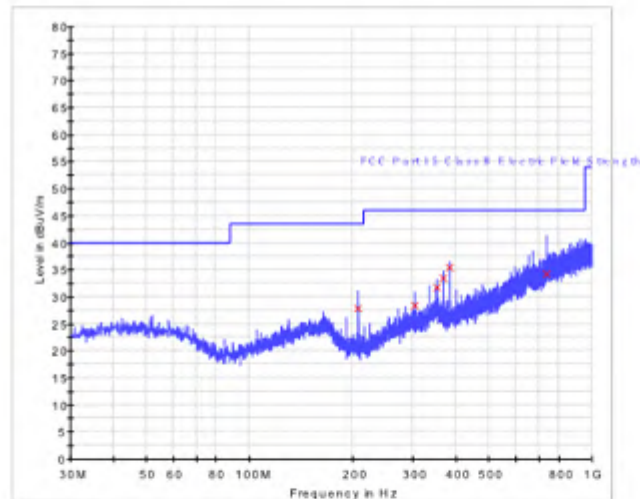
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer: Binatone
Test Item:
Identification: MBP944CONNECT(Monitor)
Test Standard: FCC Part 15
Test Detail: Radiated Emission
Operation Mode: Transmitting(High)
Climate Condition: 21 °C, 54 %, 100 kPa
Test Voltage/ Freq: AC 120 V / 60 Hz
Receipt No: 164117606(174078251)
Report No:
Result: Pass
Comment: Test distance is 3m; Horizontal

Subrange 1
Frequency range: 30-1000MHz
Receiver: ESCI 3
Transducer: VULB9168



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)	Comment
208.040000	27.9	1000.0	120.000	H	17.9	15.6	43.5	
304.080000	28.4	1000.0	120.000	H	21.8	17.6	46.0	
352.080000	31.7	1000.0	120.000	H	23.1	14.3	46.0	
368.080000	33.6	1000.0	120.000	H	23.5	12.5	46.0	
384.080000	35.5	1000.0	120.000	H	23.9	10.5	46.0	
736.240000	34.3	1000.0	120.000	H	32.2	11.7	46.0	

Tested by: *Jacky Chen*
20180126
Reviewed by: _____

1GHz - 18GHz

TUV Rheinland (Guangdong) Ltd.

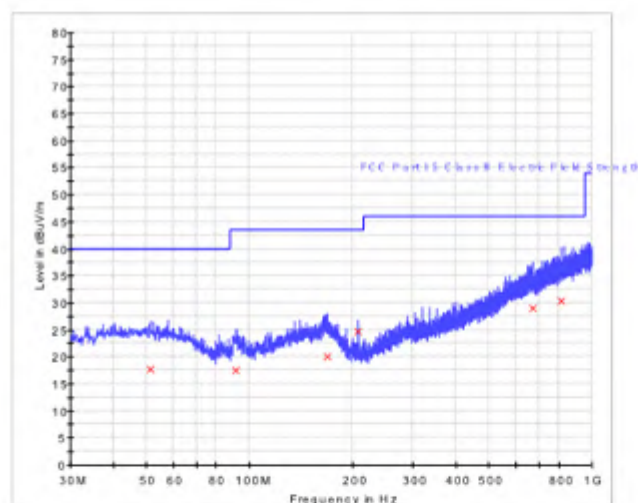
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer: Binatone
Test Item: MBP944CONNECT(Monitor)
Identification: FCC Part 15
Test Standard: Radiated Emission
Test Detail: Transmitting(High)
Operation Mode: 21 °C, 54 %, 100 kPa
Climate Condition: AC 120 V / 60 Hz
Test Voltage/ Freq: 164117606(174078251)
Receipt No:
Report No:
Result: Pass
Comment: Test distance is 3m; Vertical

Subrange 1
Frequency range: 30-1000MHz
Receiver: ESCI 3
Transducer: VULB9168



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)	Comment
51.320000	17.6	1000.0	120.000	V	20.6	22.4	40.0	
91.120000	17.5	1000.0	120.000	V	16.5	26.0	43.5	
169.320000	20.0	1000.0	120.000	V	21.0	23.5	43.5	
208.040000	24.6	1000.0	120.000	V	17.9	18.9	43.5	
672.280000	28.9	1000.0	120.000	V	31.2	17.1	46.0	
813.280000	30.4	1000.0	120.000	V	33.5	15.6	46.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
1200.000000	45.3	1000.0	1000.000	H	-19.0	28.7	74.0	
4804.000000	39.0	1000.0	1000.000	H	-7.8	35.1	74.0	
7016.000000	39.8	1000.0	1000.000	H	-5.2	34.2	74.0	
13846.000000	52.7	1000.0	1000.000	H	3.6	21.3	74.0	
15155.000000	52.2	1000.0	1000.000	H	5.7	21.8	74.0	
17688.000000	54.5	1000.0	1000.000	H	9.2	19.5	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
1200.000000	35.6	1000.0	1000.000	H	-19.0	18.4	54.0	
4804.000000	27.0	1000.0	1000.000	H	-7.8	27.0	54.0	
7016.000000	27.9	1000.0	1000.000	H	-5.2	26.1	54.0	
13846.000000	40.1	1000.0	1000.000	H	3.6	13.9	54.0	
15155.000000	40.2	1000.0	1000.000	H	5.7	13.8	54.0	
17688.000000	42.1	1000.0	1000.000	H	9.2	11.9	54.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

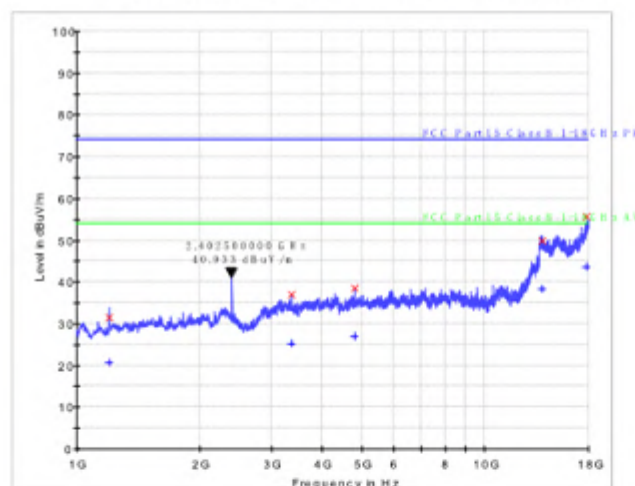
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer:	Binatone
Test Item:	
Identification:	MBP944CONNECT(Monitor)
Test Standard:	FCC Part 15
Test Detail:	Radiated Emission
Operation Mode:	Transmitting(2.4GHz-Low)
Climate Condition:	21 °C, 54 %, 100 kPa
Test Voltage/ Freq:	AC 120 V / 60 Hz
Receipt No:	164117606(174078251)
Report No:	
Result:	Pass
Comment:	Test distance is 3m; Vertical
Subrange 1	
Frequency Range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMCTT_EREFD11-A02-07_1GHz-18GHz_Wth PwAMP EXT& Notch Filter



Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
1200.000000	31.4	1000.0	1000.000	V	-19.0	42.6	74.0	
3361.000000	36.9	1000.0	1000.000	V	-11.3	37.1	74.0	
4804.000000	38.6	1000.0	1000.000	V	-7.8	35.4	74.0	
13854.000000	49.9	1000.0	1000.000	V	3.6	24.1	74.0	
17819.000000	55.5	1000.0	1000.000	V	9.7	18.5	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
1200.000000	20.5	1000.0	1000.000	V	-19.0	53.5	74.0	
3361.000000	25.2	1000.0	1000.000	V	-11.3	48.8	74.0	
4804.000000	27.0	1000.0	1000.000	V	-7.8	47.0	74.0	
13854.000000	38.3	1000.0	1000.000	V	3.6	35.7	74.0	
17819.000000	43.6	1000.0	1000.000	V	9.7	30.4	74.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

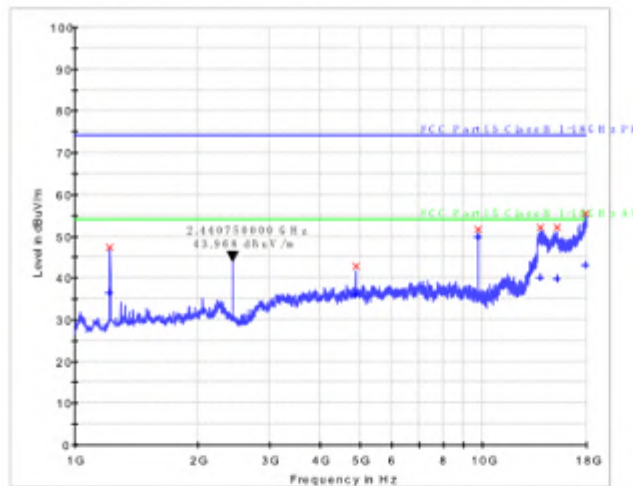
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer:	Binatone
Test Item:	
Identification:	MBP944CONNECT(Monitor)
Test Standard:	FCC Part 15
Test Detail:	Radiated Emission
Operation Mode:	Transmitting(2.4GHz-Mid)
Climate Condition:	21 °C, 54 %, 100 kPa
Test Voltage/ Freq:	AC 120 V / 60 Hz
Receipt No:	164117606(174078251)
Report No:	
Result:	Pass
Comment:	Test distance is 3m; Horizontal
Subrange 1	
Frequency Range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMCTT_EREFD11-A02-07_1GHz-18GHz_Wth PwAMP EXT& Notch Filter



Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
1219.000000	47.4	1000.0	1000.000	H	-19.0	26.6	74.0	
4880.000000	42.7	1000.0	1000.000	H	-7.4	31.3	74.0	
9761.000000	51.6	1000.0	1000.000	H	-3.4	22.4	74.0	
13848.000000	52.1	1000.0	1000.000	H	3.6	22.0	74.0	
15225.000000	52.0	1000.0	1000.000	H	5.5	22.0	74.0	
17872.000000	55.3	1000.0	1000.000	H	9.8	18.7	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
1219.000000	36.5	1000.0	1000.000	H	-19.0	17.5	54.0	
4880.000000	36.1	1000.0	1000.000	H	-7.4	18.0	54.0	
9761.000000	50.0	1000.0	1000.000	H	-3.4	4.0	54.0	
13848.000000	40.0	1000.0	1000.000	H	3.6	14.0	54.0	
15225.000000	39.9	1000.0	1000.000	H	5.5	14.1	54.0	
17872.000000	43.0	1000.0	1000.000	H	9.8	11.0	54.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

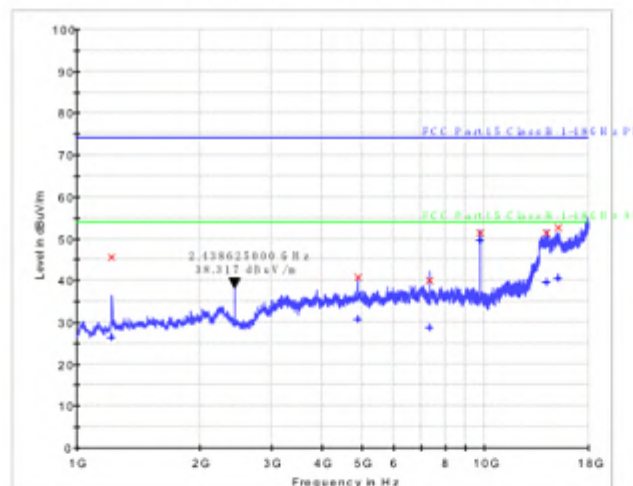
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer:	Binatone
Test Item:	
Identification:	MBP944CONNECT(Monitor)
Test Standard:	FCC Part 15
Test Detail:	Radiated Emission
Operation Mode:	Transmitting(2.4GHz-Mid)
Climate Condition:	21 °C, 54 %, 100 kPa
Test Voltage/ Freq:	AC 120 V / 60 Hz
Receipt No:	164117606(174078251)
Report No:	
Result:	Pass
Comment:	Test distance is 3m; Vertical
Subrange 1	
Frequency Range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMC TT_EREF011-A02-07_1GHz-18GHz_WB PwAMP EXT&Notch Filter



Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
1219.000000	45.5	1000.0	1000.000	V	-19.0	28.5	74.0	
4880.000000	40.8	1000.0	1000.000	V	-7.4	33.2	74.0	
7320.000000	40.0	1000.0	1000.000	V	-5.6	34.0	74.0	
9761.000000	51.5	1000.0	1000.000	V	-3.4	22.5	74.0	
14190.000000	51.4	1000.0	1000.000	V	5.0	22.6	74.0	
15161.000000	52.7	1000.0	1000.000	V	5.7	21.3	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
1219.000000	26.4	1000.0	1000.000	V	-19.0	27.6	54.0	
4880.000000	30.6	1000.0	1000.000	V	-7.4	23.4	54.0	
7320.000000	28.7	1000.0	1000.000	V	-5.6	25.3	54.0	
9761.000000	49.6	1000.0	1000.000	V	-3.4	4.4	54.0	
14190.000000	39.6	1000.0	1000.000	V	5.0	14.4	54.0	
15161.000000	40.7	1000.0	1000.000	V	5.7	13.3	54.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

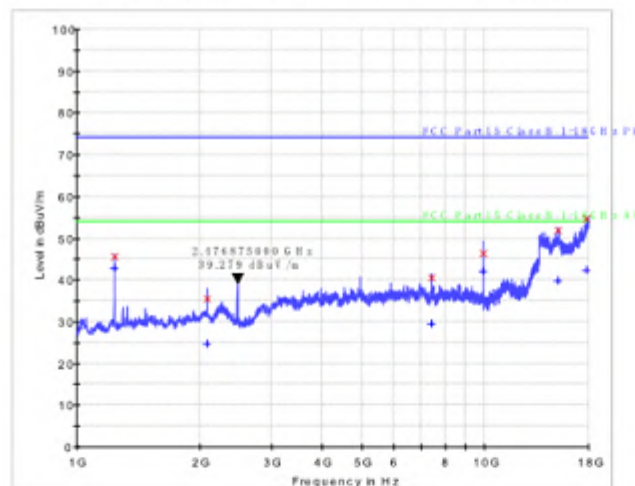
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer:	Binatone
Test Item:	
Identification:	MBP944CONNECT(Monitor)
Test Standard:	FCC Part 15
Test Detail:	Radiated Emission
Operation Mode:	Transmitting(2.4GHz-High)
Climate Condition:	21 °C, 54 %, 100 kPa
Test Voltage/ Freq:	AC 120 V / 60 Hz
Receipt No:	164117606(174078251)
Report No:	
Result:	Pass
Comment:	Test distance is 3m; Horizontal
Subrange 1	
Frequency Range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMCTT_EREFD11-A02-07_1GHz-18GHz_W 3h PwAMP EXT& Notch Filter



Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
1238.000000	45.6	1000.0	1000.000	H	-19.0	28.4	74.0	
2090.000000	35.5	1000.0	1000.000	H	-15.2	38.5	74.0	
7432.000000	40.6	1000.0	1000.000	H	-5.3	33.4	74.0	
9910.000000	46.2	1000.0	1000.000	H	-3.0	27.8	74.0	
15193.000000	52.0	1000.0	1000.000	H	5.6	22.0	74.0	
17751.000000	54.7	1000.0	1000.000	H	9.0	19.3	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
1238.000000	42.7	1000.0	1000.000	H	-19.0	11.3	54.0	
2090.000000	24.6	1000.0	1000.000	H	-15.2	29.4	54.0	
7432.000000	29.5	1000.0	1000.000	H	-5.3	24.5	54.0	
9910.000000	42.1	1000.0	1000.000	H	-3.0	11.9	54.0	
15193.000000	39.9	1000.0	1000.000	H	5.6	14.1	54.0	
17751.000000	42.3	1000.0	1000.000	H	9.0	11.7	54.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

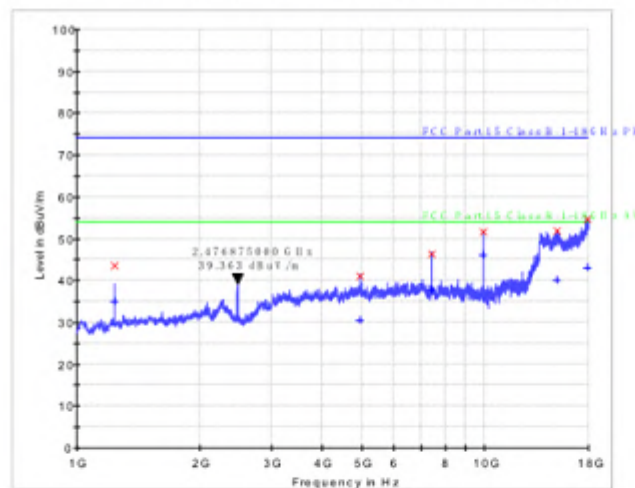
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer:	Binatone
Test Item:	
Identification:	MBP944CONNECT(Monitor)
Test Standard:	FCC Part 15
Test Detail:	Radiated Emission
Operation Mode:	Transmitting(2.4GHz-High)
Climate Condition:	21 °C, 54 %, 100 kPa
Test Voltage/ Freq:	AC 120 V / 60 Hz
Receipt No:	164117606(174078251)
Report No:	
Result:	Pass
Comment:	Test distance is 3m; Vertical
Subrange 1	
Frequency Range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMC TT_EREF011-A02-07_1GHz-18GHz_WB PwAMP EXT&Notch Filter



Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
1238.000000	43.5	1000.0	1000.000	V	-19.0	30.5	74.0	
4955.000000	41.1	1000.0	1000.000	V	-7.6	32.9	74.0	
7432.000000	46.4	1000.0	1000.000	V	-5.3	27.6	74.0	
9910.000000	51.7	1000.0	1000.000	V	-3.0	22.3	74.0	
15074.000000	51.9	1000.0	1000.000	V	5.6	22.1	74.0	
17870.000000	54.8	1000.0	1000.000	V	9.8	19.2	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
1238.000000	35.0	1000.0	1000.000	V	-19.0	19.0	54.0	
4955.000000	30.5	1000.0	1000.000	V	-7.6	23.5	54.0	
7432.000000	37.8	1000.0	1000.000	V	-5.3	16.2	54.0	
9910.000000	46.1	1000.0	1000.000	V	-3.0	8.0	54.0	
15074.000000	40.1	1000.0	1000.000	V	5.6	13.9	54.0	
17870.000000	43.0	1000.0	1000.000	V	9.8	11.0	54.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

Appendix B.3: Test Results of Radiated Emissions in Restricted Bands

Low channel

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

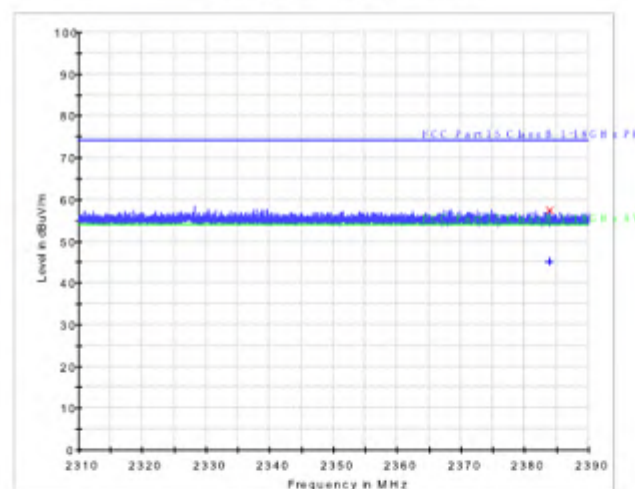
EMC Test Record (Emission)

Common Information

Manufacturer: Binatone
Test Item:
Identification: MBP944CONNECT(Monitor)
Test Standard: FCC Part 15
Test Detail: Radiated Emission(Band-edge)
Operation Mode: Transmitting(2.4GHz-Low)
Climate Condition: 21 °C, 54 %, 100 kPa
Test Voltage/ Freq: AC 120 V / 60 Hz
Receipt No: 164117606(174078251)
Report No:
Result: Pass
Comment: Test distance is 3m; Horizontal

Subrange 1
Frequency Range: 1GHz-18GHz
Receiver: TUV FSP30
Transducer: TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMCTT_EREF011-A02-04_1GHz-18GHz



Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
2383.960000	57.3	1000.0	1000.000	H	31.1	16.7	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
2383.960000	45.1	1000.0	1000.000	H	31.1	8.9	54.0	

Tested by:

Jacky Chen

Reviewed by: _____

20180126

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

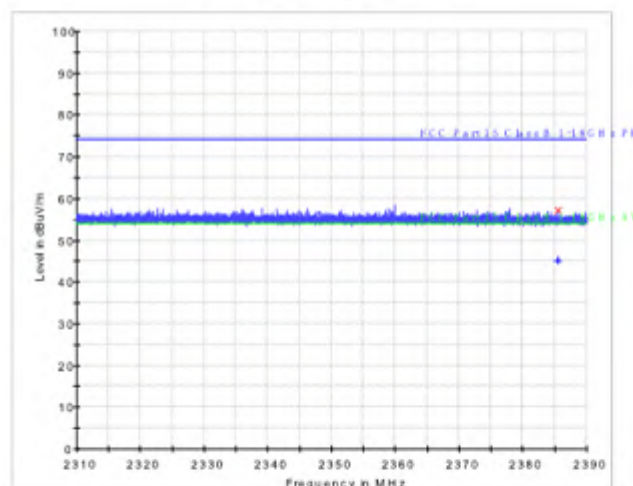
EMC Test Record (Emission)

Common Information

Manufacturer: Binatone
Test Item: MBP944CONNECT(Monitor)
Test Standard: FCC Part 15
Test Detail: Radiated Emission(Band-edge)
Operation Mode: Transmitting(2.4GHz-Low)
Climate Condition: 21 °C, 54 %, 100 kPa
Test Voltage/ Freq: AC 120 V / 60 Hz
Receipt No: 164117606(174078251)
Report No:
Result: Pass
Comment: Test distance is 3m; Vertical

Subrange 1
Frequency Range: 1GHz-18GHz
Receiver: TUV FSP30
Transducer: TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMCTT_ERE011-A02-04_1GHz-18GHz



Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
2385.520000	57.2	1000.0	1000.000	V	31.1	16.8	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
2385.520000	45.1	1000.0	1000.000	V	31.1	8.9	54.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

High channel

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

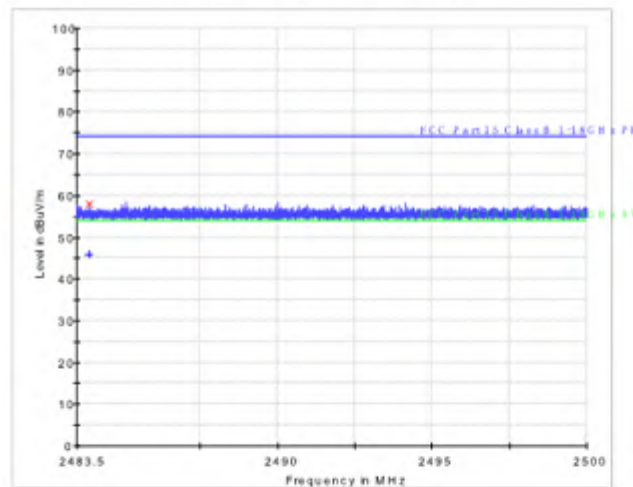
EMC Test Record (Emission)

Common Information

Manufacturer: Binatone
Test Item: MBP944CONNECT(Monitor)
Identification: FCC Part 15
Test Standard: Radiated Emission(Band-edge)
Test Detail: Transmitting(2.4GHz-High)
Operation Mode: 21 °C, 54 %, 100 kPa
Climate Condition: AC 120 V / 60 Hz
Test Voltage/ Freq: 164117606(174078251)
Receipt No:
Report No:
Result: Pass
Comment: Test distance is 3m; Horizontal

Subrange 1
Frequency Range: 1GHz-18GHz
Receiver: TUV FSP30
Transducer: TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMCTT_ERE011-A02-04_1GHz-18GHz



Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
2483.920000	57.9	1000.0	1000.000	H	31.8	16.1	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
2483.920000	45.8	1000.0	1000.000	H	31.8	8.2	54.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

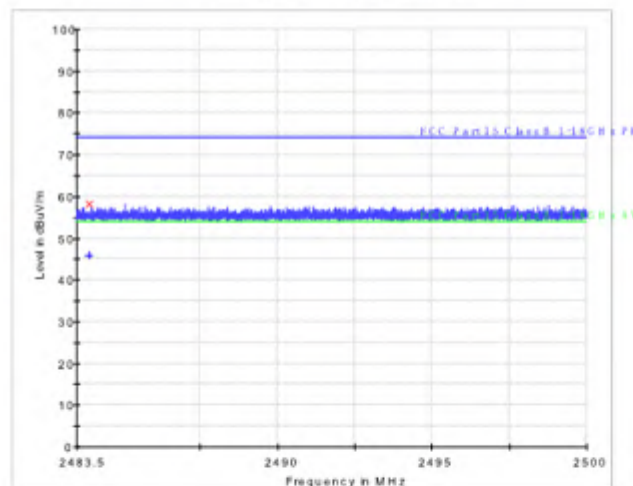
EMC Test Record (Emission)

Common Information

Manufacturer: Binatone
Test Item: MBP944CONNECT(Monitor)
Test Standard: FCC Part 15
Test Detail: Radiated Emission(Band-edge)
Operation Mode: Transmitting(2.4GHz-High)
Climate Condition: 21 °C, 54 %, 100 kPa
Test Voltage/ Freq: AC 120 V / 60 Hz
Receipt No: 164117606(174078251)
Report No:
Result: Pass
Comment: Test distance is 3m; Vertical

Subrange 1
Frequency Range: 1GHz-18GHz
Receiver: TUV FSP30
Transducer: TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMCTT_ERE011-A02-04_1GHz-18GHz



Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
2483.920000	58.1	1000.0	1000.000	V	31.8	15.9	74.0	

Limit and Margin AV

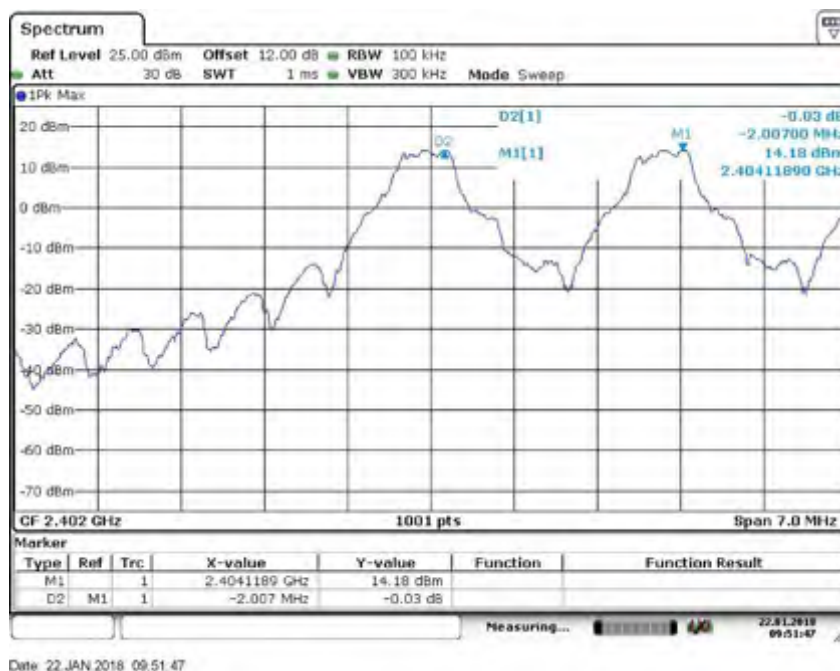
Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
2483.920000	45.8	1000.0	1000.000	V	31.8	8.2	54.0	

Tested by: *Jacky Chen* Reviewed by: _____
20180126

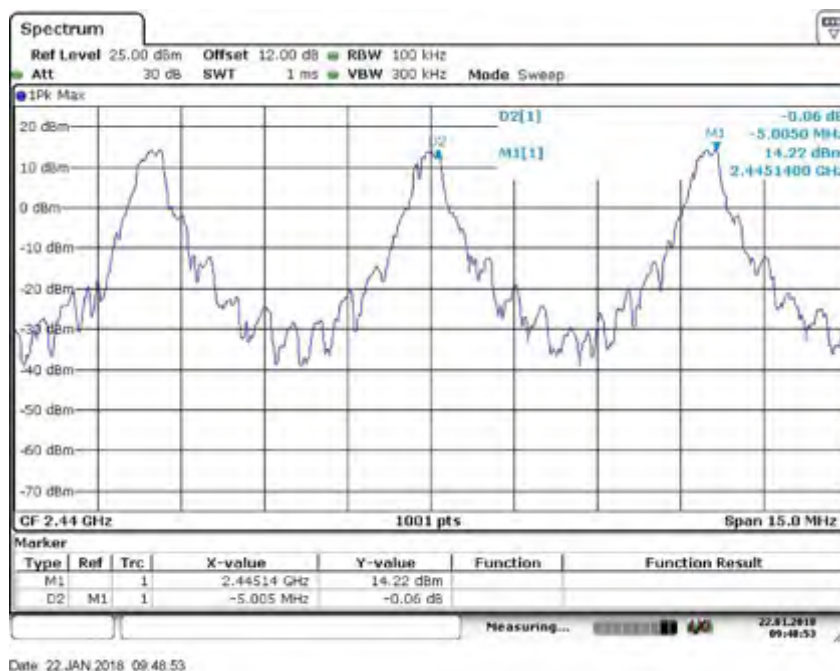
Note: Pre-test on single channels and hopping mode, and find out the worse condition for compliance test.

Appendix B.4: Test Results of Carrier Frequency Separation

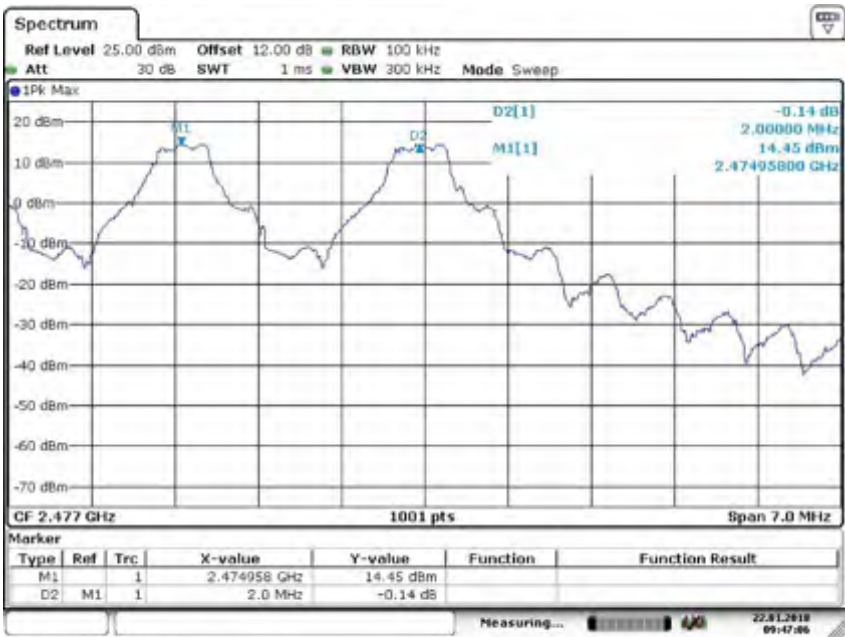
Low channel



Middle channel

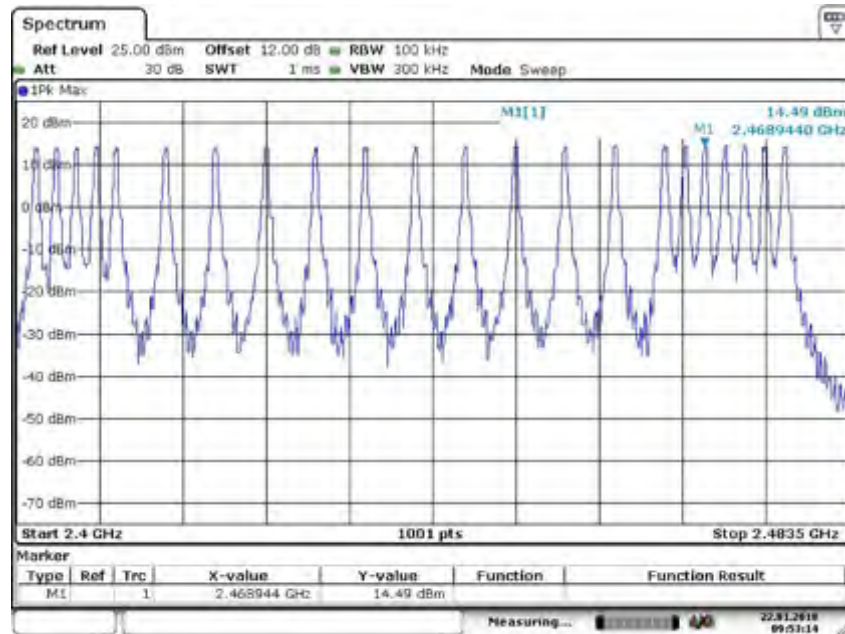


High channel



Date: 22.JAN.2018 09:47:06

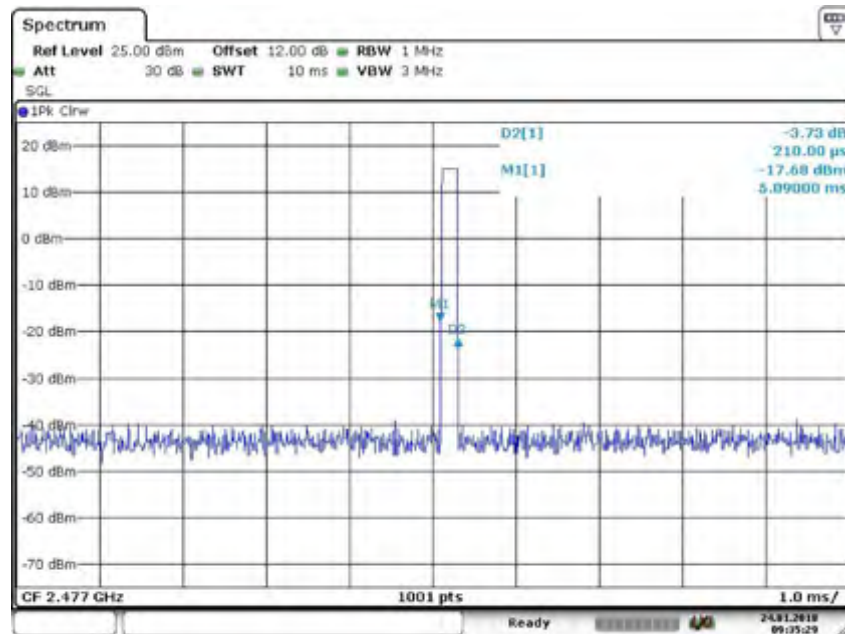
Appendix B.5: Test Results of Number of Hopping Frequency



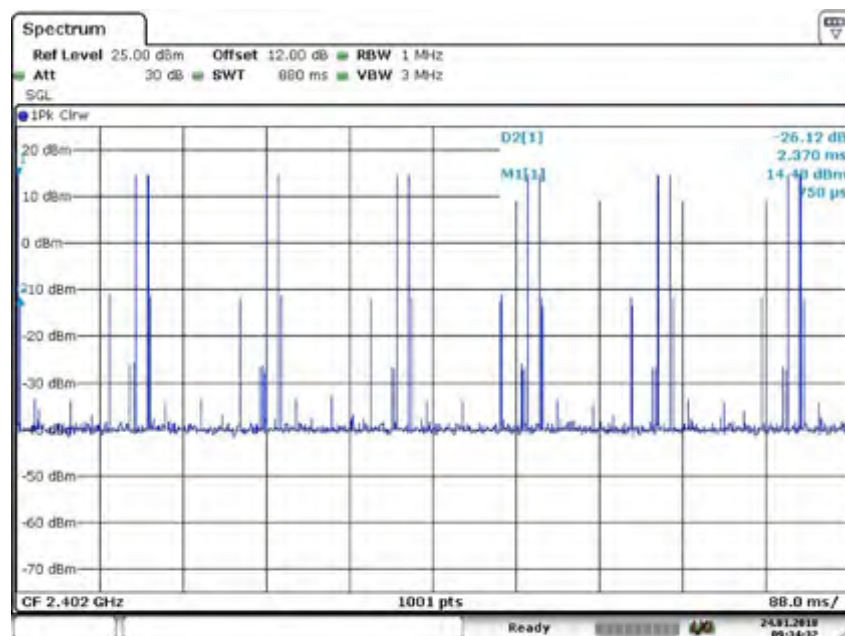
Date: 22.JAN.2018 09:53:14

Appendix B.6: Test Results of Time of Occupancy

Low channel

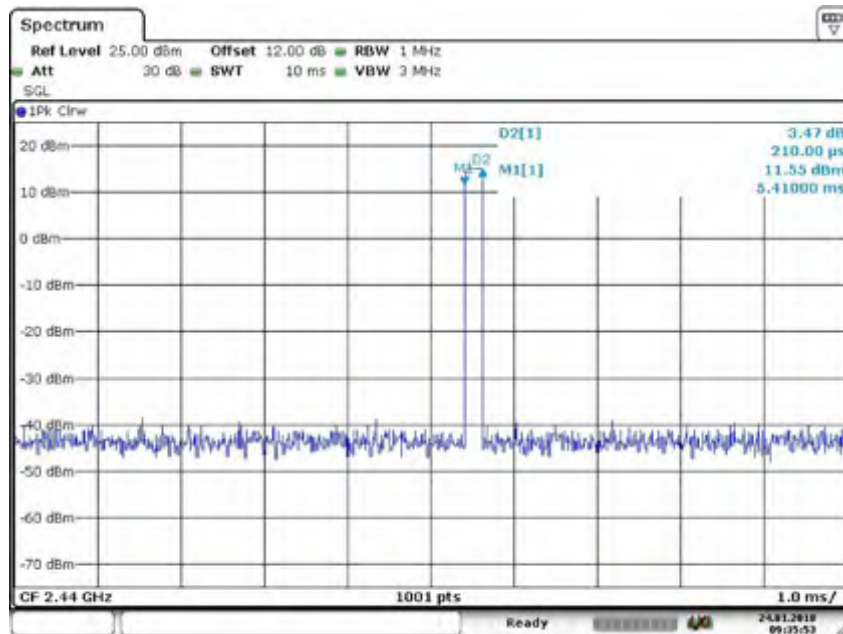


Date: 24.JAN 2018 09:35:29

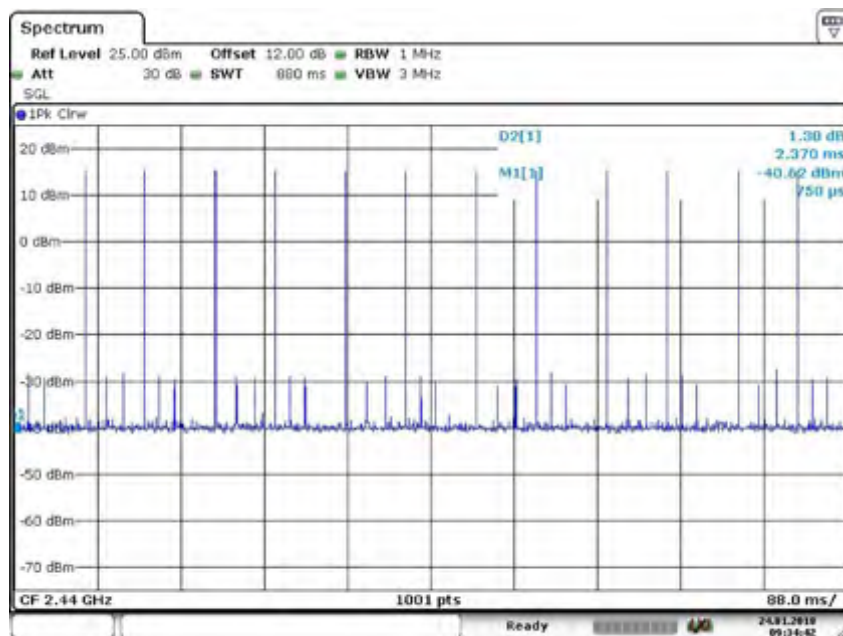


Date: 24.JAN 2018 09:34:31

Middle channel

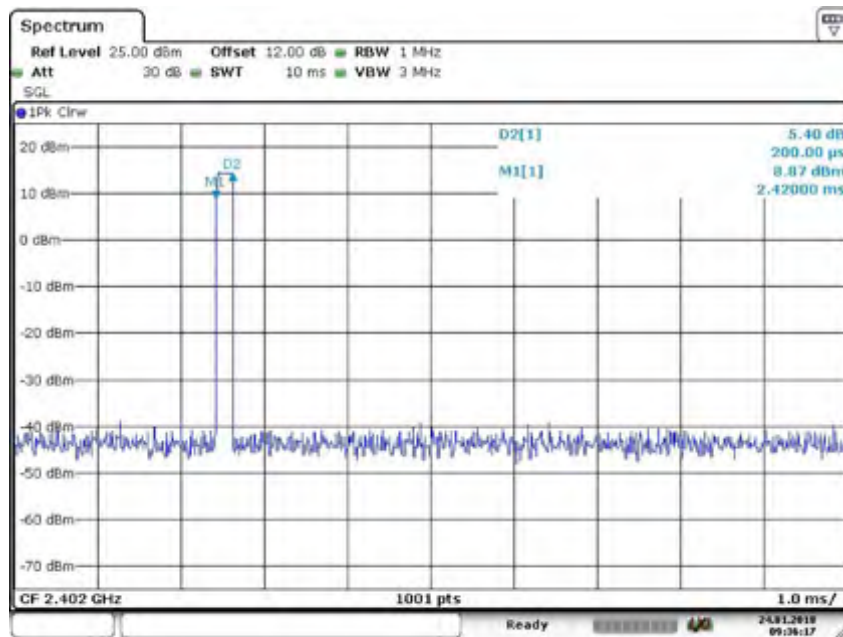


Date: 24.JAN.2018 09:35:53

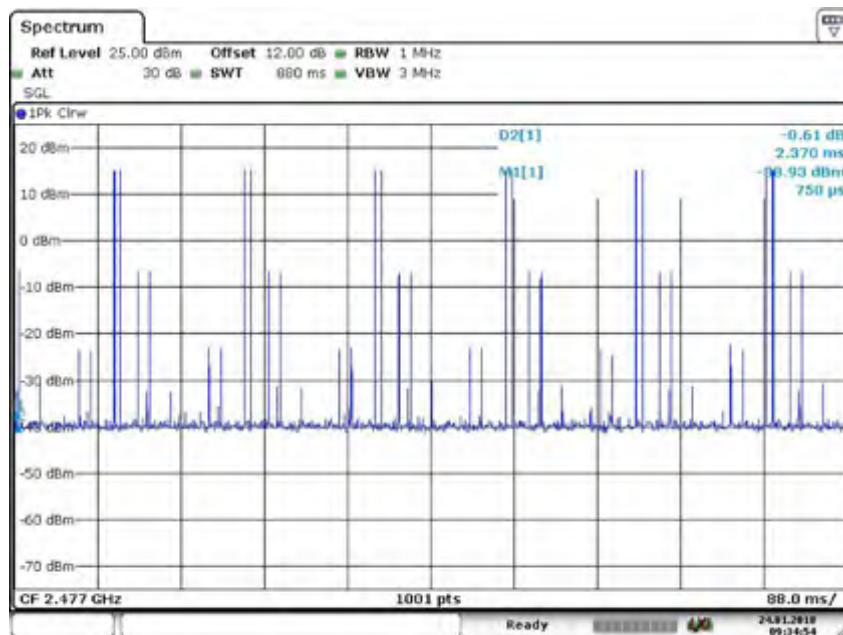


Date: 24.JAN.2018 09:34:42

High channel



Date: 24. JAN 2018 09:36:17



Date: 24. JAN 2018 09:34:54

Appendix B.7: Test Results of Conducted Emission on AC Mains

C mode with adapte #1

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

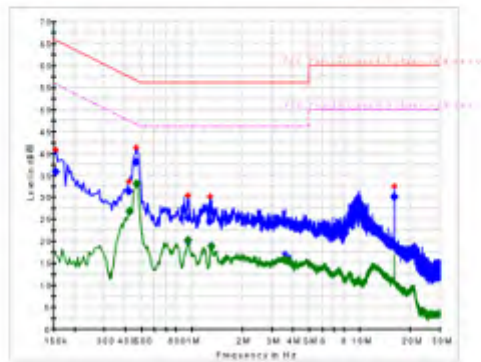
EMC Test Record (EMISSION)

Test Information

Manufacturer: Binatone
Test Item:
Identification: MBP944CONNECT(Monitor)
Test Standard: FCC Part 15
Test Detail: Conducted Emission
Operation Mode: Communication(2.4GHz)
Climate Condition: 21 °C; 54 %RH; 101 kPa.
Test Voltage/ Freq.: AC 120 V/ 60 Hz
Port / Line: AC Mains(L1+N)
Receipt No.: 164117606(174078251)
Report No.: /
Result: Pass
Comment: /

Hardware Setup: 1phase LISN ENV216 to ESCI 3
Level Unit: dBµV

Subrange	Detectors	IF Bandwidth	Step Size	Meas. Time	Receiver
150kHz - 30MHz	Peak; Average	9kHz	4.5kHz	10ms	ESCI 3



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.154500	35.76	---	65.75	30.00	1000.	9.000	L1	ON	9.8
0.424500	31.31	---	57.36	26.05	1000.	9.000	L1	ON	9.7
0.429000	---	26.79	47.27	20.48	1000.	9.000	L1	ON	9.7
0.465000	38.04	---	56.60	18.56	1000.	9.000	L1	ON	9.7
0.469500	---	33.06	46.52	13.46	1000.	9.000	L1	ON	9.7
0.946500	25.25	---	56.00	30.75	1000.	9.000	L1	ON	9.8
0.951000	---	20.21	46.00	25.79	1000.	9.000	L1	ON	9.8
1.279500	24.52	---	56.00	31.48	1000.	9.000	L1	ON	9.8
1.306500	---	18.86	46.00	27.14	1000.	9.000	L1	ON	9.8
3.565500	---	15.80	46.00	30.20	1000.	9.000	L1	ON	9.9
3.768000	---	15.64	46.00	30.36	1000.	9.000	L1	ON	9.9
16.003500	30.12	---	60.00	29.88	1000.	9.000	L1	ON	10.6

Tested by:

Jacky Chen

20180126

Reviewed by: _____

C mode with adapte #2

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

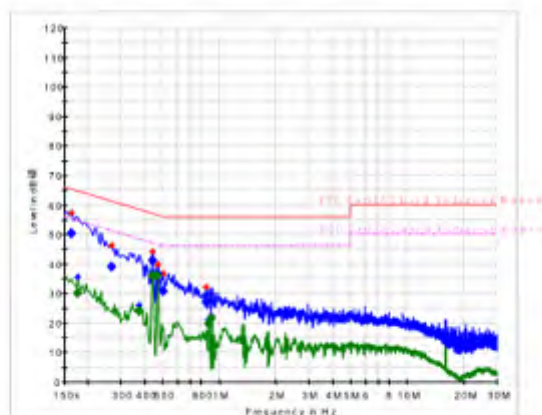
EMC Test Record (EMISSION)

Test Information

Manufacturer:	Binatone
Test Item:	
Identification:	MBP944CONNECT(Monitor)
Test Standard:	FCC Part 15
Test Detail:	Conducted Emission
Operation Mode:	Communication
Climate Condition:	20 °C; 50 %RH; 101 kPa.
Test Voltage/ Freq.:	AC 120 V/ 60 Hz
Port / Line:	AC Mains(L1+N)
Receipt No.:	164117606(174078251)
Report No.:	/
Result:	Pass
Comment:	With CSEC adapter

Hardware Setup:	1phase LISN ENV216 to ESCI 3
Level Unit:	dBμV

Subrange	Detectors	IF Bandwidth	Step Size	Meas.	Receiver
150kHz - 30MHz	Peak; Average	9kHz	4.5kHz	10ms	ESCI 3



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.163500	50.34	---	65.28	14.94	1000.	9.000	N	ON	9.8
0.177000	---	30.18	54.63	24.44	1000.	9.000	N	ON	9.8
0.267000	38.90	---	61.21	22.31	1000.	9.000	N	ON	9.8
0.375000	---	23.93	48.39	24.46	1000.	9.000	N	ON	9.8
0.442500	---	35.82	47.02	11.19	1000.	9.000	L1	ON	9.7
0.442500	41.15	---	57.02	15.86	1000.	9.000	L1	ON	9.7
0.469500	---	35.76	46.52	10.76	1000.	9.000	L1	ON	9.7
0.474000	36.61	---	56.44	19.84	1000.	9.000	L1	ON	9.7
0.505500	30.66	---	56.00	25.34	1000.	9.000	N	ON	9.8
0.847500	27.04	---	56.00	28.96	1000.	9.000	N	ON	9.8
0.883500	---	19.63	46.00	26.37	1000.	9.000	L1	ON	9.8
0.910500	---	21.54	46.00	24.46	1000.	9.000	L1	ON	9.8

Tested by: *Jacky Chen*
20180212
Reviewed by: _____