# **TEST REPORT**

**Reference No.** : WTS17S0169203-1E

FCC ID ...... : V8VCNE8206MBRS

Applicant.....: SKYPINE ELECTRONICS (SHEN ZHEN) CO.,LTD.

Address .... A1 BUILDING, NO.6 XINXING INDUSTRIAL PARK, XINHE VILLAGE,

FUYONG TOWN, BAOAN, SHENZHEN, China

Manufacturer ...... : The same as above

Address..... The same as above

Product Name...... : ALL IN ONE DVD PLAYER

**Model No.** : PR-UN1670, CNE-8206MB-RS

Date of Receipt sample .... : Jan. 09, 2017

**Date of Test** ...... : Jan. 10 – 14 ,2017

Test Result..... : Pass

#### Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

#### Prepared By:

#### Waltek Services (Shenzhen) Co., Ltd.

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Compiled by:

Zero Zhou / Test Engineer

Philo Zhong / Manager

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# 3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue Purpose		Comment	Approved
WTS17S0169203-1E	Jan. 09, 2017	Jan. 10 – 14 ,2017	Jan. 16, 2017	original	-	Valid

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#### 4 General Information

### 4.1 General Description of E.U.T.

Product Name: ALL IN ONE DVD PLAYER

Model No.: PR-UN1670, CNE-8206MB-RS

Model Description: Only the model names are different.

Bluetooth Version: V4.0(With BLE)

Operation Frequency: 2402-2480MHz, 79(EDR)/40(BLE) Channels in total

Type of Modulation: GFSK, Pi/4DQPSK, 8DPSK

The lowest oscillator: 32.768KHz

Antenna Gain: 0 dBi

Antenna installation: PCB Printed Antenna

4.2 Details of E.U.T.

Technical Data: DC 12V 15A Max

#### 4.3 Channel List

### BLE mode

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
No.	(MHz)	No.	(MHz)	No.	(MHz)	No.	(MHz)
0	2402	1	2404	2	2406	3	2408
4	2410	5	2412	6	2414	7	2416
8	2418	9	2420	10	2422	11	2424
12	2426	13	2428	14	2430	15	2432
16	2434	17	2436	18	2438	19	2440
20	2442	21	2444	22	2446	23	2448
24	2450	25	2452	26	2454	27	2456
28	2458	29	2460	30	2462	31	2464
32	2466	33	2468	34	2470	35	2472
36	2474	37	2476	38	2478	39	2480

#### 4.4 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Table 1 Tests Carried Out Under FCC part 15.247

Test mode Low channel		Middle channel	High channel	
Transmitting	2402MHz	2440MHz	2480MHz	

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### 4.5 Test Facility

The test facility has a test site registered with the following organizations:

#### • IC – Registration No.: 7760A-1

Waltek Services(Shenzhen) Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A-1, October 15, 2015.

#### FCC Test Site 1# Registration No.: 880581

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, April 29, 2014.

#### FCC Test Site 2# Registration No.: 328995

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 328995, December 3, 2014.

#### **Equipment Used during Test** 5

#### **Equipments List** 5.1

Conducted Emissions Test Site 1#

2.         LISN         R&S         ENV216         101215         Sep.14,2016         Sep. 14,2016	0.13,2017 0.13,2017 0.13,2017 0.13,2017 0.13,2017 0.13,2017 0.13,2017	
3.   Cable   Top   TYPE16(3.5M)   -   Sep.14,2016   Sep.	D.13,2017 libration ue Date D.13,2017 D.13,2017 D.13,2017	
Item         Equipment         Manufacturer         Model No.         Serial No.         Last Calibration Date           1.         EMI Test Receiver         R&S         ESCI         101155         Sep.14,2016         Sep. 14,2016	libration ue Date 0.13,2017 0.13,2017 0.13,2017	
Item         Equipment         Manufacturer         Model No.         Serial No.         Last Calibration Date         Calibration Date           1.         EMI Test Receiver         R&S         ESCI         101155         Sep.14,2016         Sep. 14,2016	o.13,2017 o.13,2017 o.13,2017	
Item         Equipment         Manufacturer         Model No.         Serial No.         Calibration Date         Calibration Date           1.         EMI Test Receiver         R&S         ESCI         101155         Sep.14,2016         Sep. 14,2016         S	o.13,2017 o.13,2017 o.13,2017	
2.         LISN         SCHWARZBECK         NSLK 8128         8128-289         Sep.14,2016         Sep. 3.           3.         Limiter         York         MTS-IMP-136         261115-001-0024         Sep.14,2016         Sep. 3.           4.         Cable         LARGE         RF300         -         Sep.14,2016         Sep. 3.           3m Semi-anechoic Chamber for Radiation Emissions Test site 1#         Model No.         Serial No.         Calibration Date           1         EMC Analyzer         Agilent         E7405A         MY45114943         Sep.14,2016         Sep. 3.           2         Active Loop Antenna         Beijing Dazhi         ZN30900A         -         Sep.14,2016         Sep. 3.           3         Trilog Broadband Antenna         SCHWARZBECK         VULB9163         336         Apr.19,2016         Apr. 3.           4         Coaxial Cable (below 1GHz)         Top         TYPE16(13M)         -         Sep.14,2016         Sep. 3.           5         Broad-band Horn Antenna         SCHWARZBECK         BBHA 9120         667         Apr.19,2016         Apr. 3.           6         Broad-band Horn Antenna         SCHWARZBECK         BBHA 9170         335         Apr. 19,2016         Apr. 3.	o.13,2017 o.13,2017	
3.         Limiter         York         MTS-IMP-136         261115-001-0024         Sep.14,2016         Sej.44           4.         Cable         LARGE         RF300         -         Sep.14,2016         Sej.44           3m Semi-anechoic Chamber for Radiation Emissions Test site 1#         Last Calibration Date         Last Calibration Date         Calibration Date         Calibration Date         Calibration Date         Calibration Date         Sep.14,2016         Sej.14,2016         Sej.14,2016 <td rowspa<="" td=""><td>o.13,2017</td></td>	<td>o.13,2017</td>	o.13,2017
3.         Limiter         York         MTS-IMP-136         0024         Sep.14,2016         Set           4.         Cable         LARGE         RF300         -         Sep.14,2016         Set           3m Semi-anechoic Chamber for Radiation Emissions Test site 1#           Item         Equipment         Manufacturer         Model No.         Serial No.         Last Calibration Date         Ca           1         EMC Analyzer         Agilent         E7405A         MY45114943         Sep.14,2016         Set           2         Active Loop Antenna         Beijing Dazhi         ZN30900A         -         Sep.14,2016         Set           3         Trilog Broadband Antenna         SCHWARZBECK         VULB9163         336         Apr.19,2016         Ap           4         Coaxial Cable (below 1GHz)         Top         TYPE16(13M)         -         Sep.14,2016         Set           5         Broad-band Horn Antenna         SCHWARZBECK         BBHA 9120 D         667         Apr.19,2016         Ap           6         Broad-band Horn Antenna         SCHWARZBECK         BBHA 9170         335         Apr.19,2016         Ap           7         Broadband Preamplifier         DIRECTION         PAP-1G18         2004		
Item         Equipment         Manufacturer         Model No.         Serial No.         Last Calibration Date           1         EMC Analyzer         Agilent         E7405A         MY45114943         Sep.14,2016         Apr.19,2016	).13,2017	
Item         Equipment         Manufacturer         Model No.         Serial No.         Calibration Date         Calibration Date           1         EMC Analyzer         Agilent         E7405A         MY45114943         Sep.14,2016         Apr.19,2016	•	
Item         Equipment         Manufacturer         Model No.         Serial No.         Calibration Date         Calibration Date           1         EMC Analyzer         Agilent         E7405A         MY45114943         Sep.14,2016         Sep. 14,2016         Apr. 19,2016         <		
2         Active Loop Antenna         Beijing Dazhi         ZN30900A         -         Sep.14,2016         Sep. 14,2016         Sep. 14,2016         Sep. 14,2016         Sep. 14,2016         Sep. 14,2016         Apr. 19,2016         Apr. 19,2016         Apr. 19,2016         Apr. 19,2016         Apr. 19,2016         Sep. 14,2016         Apr. 19,2016         Ap	libration ue Date	
Trilog Broadband Antenna  SCHWARZBECK VULB9163 336 Apr.19,2016 Apr. 19,2016 Apr. 19,2016 Apr. 19,2016 Apr. 19,2016 Apr. 19,2016 Sep. 14,2016 Apr. 19,2016 Apr. 19	o.13,2017	
3         Antenna         SCHWARZBECK         VOLB9163         336         Apr.19,2016         Ap           4         Coaxial Cable (below 1GHz)         Top         TYPE16(13M)         -         Sep.14,2016         Sel           5         Broad-band Horn Antenna         SCHWARZBECK         BBHA 9120 D         667         Apr.19,2016         Ap           6         Broad-band Horn Antenna         SCHWARZBECK         BBHA 9170         335         Apr.19,2016         Ap           7         Broadband Preamplifier         COMPLIANCE DIRECTION         PAP-1G18         2004         Mar.17,2016         Ma           8         Coaxial Cable (above 1GHz)         Top         1GHz-25GHz         EW02014-7         Apr.10,2016         Ap           3m Semi-anechoic Chamber for Radiation Emissions Test site 2#	5.13,2017	
4 (below 1GHz) 10p 1YPE16(13M) - Sep.14,2016 Sep. 14,2016	r.18,2017	
Antenna SCHWARZBECK BBHA 9120 D 667 Apr.19,2016 Ap Broad-band Horn Antenna SCHWARZBECK BBHA 9170 335 Apr.19,2016 Ap  Broadband COMPLIANCE PAP-1G18 2004 Mar.17,2016 Ma Coaxial Cable (above 1GHz) Top 1GHz-25GHz EW02014-7 Apr.10,2016 Ap  3m Semi-anechoic Chamber for Radiation Emissions Test site 2#	o.13,2017	
Antenna SCHWARZBECK BBHA 9170 335 Apr.19,2016 Ap  Recomplifier COMPLIANCE PAP-1G18 2004 Mar.17,2016 Ma  Coaxial Cable (above 1GHz) Top 1GHz-25GHz EW02014-7 Apr.10,2016 Ap  3m Semi-anechoic Chamber for Radiation Emissions Test site 2#	r.18,2017	
Preamplifier DIRECTION PAP-1G18 2004 Mar.17,2016 Mar. Semi-anechoic Chamber for Radiation Emissions Test site 2#	r.18,2017	
3m Semi-anechoic Chamber for Radiation Emissions Test site 2#	r.16,2017	
	r.09,2017	
I Itam   Fallinmant   Maniitactiirar   Magalina   Sarial na   Calinration	libration ue Date	
Antenna	0.13,2017	
3 Amplifier Compliance pirection PAP-0203 22024 Sep.14,2016 Sep. systems inc	o.13,2017 o.13,2017	
4 Cable HUBER+SUHNER CBL2 525178 Sep.14,2016 Sep.		

Last

RF Coi	RF Conducted Testing									
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date				
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	Sep.14,2016	Sep.13,2017				
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	Sep.14,2016	Sep.13,2017				
3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	Sep.14,2016	Sep.13,2017				

### 5.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10 <sup>-6</sup>
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
	± 5.03 dB (Bilog antenna 30M~1000MHz)
Radiated Spurious Emissions test	± 4.74 dB (Horn antenna 1000M~25000MHz)
Conducted Spurious Emissions test	± 3.64 dB (AC mains 150KHz~30MHz)

5.3 Test Equipment Calibration
All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

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# 6 Test Summary

Test Items	Test Requirement	Result
Dadiated Emissions	15.205(a)	
Radiated Emissions	15.209(a)	С
Conducted Emissions	15.207(a)	N/A
Bandwidth	15.247(a)(2)	С
Maximum Peak Output Power	15.247(b)(3),(4)	С
Power Spectral Density	15.247(e)	С
Band Edge	15.247(d)	С
Antenna Requirement	15.203	С
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	С

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### 7 Radiated Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.247

Test Method: 558074 D01 DTS Meas Guidance v03r05 & ANSI C63.10:2013

Test Result: PASS
Measurement Distance: 3m

Limit:

_	Field Strei	ngth	Field Strength Limit at 3m Measurement Dist			
Frequency (MHz)	uV/m	Distance (m)	uV/m	dBuV/m		
0.009 ~ 0.490	0 2400/F(kHz) 300		10000 * 2400/F(kHz)	20log <sup>(2400/F(kHz))</sup> + 80		
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	20log <sup>(24000/F(kHz))</sup> + 40		
1.705 ~ 30	30	30	100 * 30	20log <sup>(30)</sup> + 40		
30 ~ 88	100	3	100	20log <sup>(100)</sup>		
88 ~ 216	150	3	150	20log <sup>(150)</sup>		
216 ~ 960	200	3	200	20log <sup>(200)</sup>		
Above 960	500	3	500	20log <sup>(500)</sup>		

### 7.1 EUT Operation

Operating Environment:

Temperature:  $25.5 \, ^{\circ}\text{C}$ Humidity:  $51 \, ^{\circ}\text{RH}$ Atmospheric Pressure: 1016 mbar

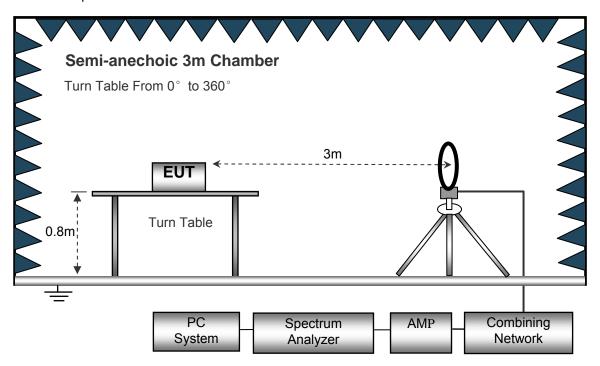
**EUT Operation:** 

The test was performed in transmitting mode, the test data were shown in the report.

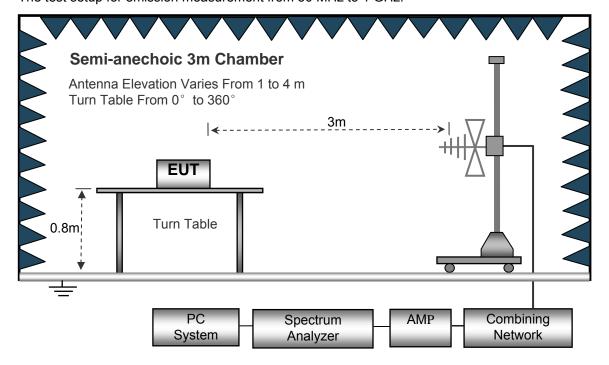
### 7.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10: 2013.

The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



Anechoic 3m Chamber

Antenna Elevation Varies From 1 to 4 m
Turn Table From 0° to 360°

Turn Table

Absorbers

PC
System
Analyzer

AMP
Combining
Network

The test setup for emission measurement above 1 GHz.

### 7.3 Spectrum Analyzer Setup

	-	
Below 30MHz	<u>z</u>	
	Sweep Speed	Auto
	IF Bandwidth	10kHz
	Video Bandwidth	10kHz
	Resolution Bandwidth	10kHz
30MHz ~ 1GH	<del>l</del> z	
	Sweep Speed	Auto
	Detector	PK
	Resolution Bandwidth	100kHz
	Video Bandwidth	300kHz
Above 1GHz		
	Sweep Speed	Auto
	Detector	PK
	Resolution Bandwidth	1MHz
	Video Bandwidth	3MHz
	Detector	Ave.
	Resolution Bandwidth	1MHz
	Video Bandwidth	10Hz

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#### 7.4 Test Procedure

1. The EUT is placed on a turntable. For below 1GHz, the EUT is 0.8m above ground plane; For above1GHz, the EUT is 1.5m above ground plane.

- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until the measurements for all frequencies are complete.
- 7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

### 7.5 Summary of Test Results

Test Frequency: 9KHz~ 30MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency: 30MHz ~ 18GHz

	Receiver		Turn	RX An	tenna	Corrected	Corrected		
Frequency	Reading	Detector	table Angle	Height	Polar	Factor	Amplitude	Limit	Margin
(MHz)	(dBµV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
			GFSk	(BLE) Lo	ow Chan	nel			
165.38	22.41	QP	225	1.8	Н	10.59	33.00	43.53	-10.53
165.38	18.65	QP	344	1.1	V	10.59	29.24	43.53	-14.29
4804.00	44.78	PK	203	1.5	V	-1.08	43.70	74.00	-30.30
4804.00	38.62	Ave	203	1.5	V	-1.08	37.54	54.00	-16.46
7206.00	45.93	PK	211	1.8	Н	1.34	47.27	74.00	-26.73
7206.00	40.56	Ave	211	1.8	Н	1.34	41.90	54.00	-12.10
2332.11	36.78	PK	279	1.8	V	-13.20	23.58	74.00	-50.42
2332.11	31.58	Ave	279	1.8	V	-13.20	18.38	54.00	-35.62
2382.24	34.08	PK	245	1.4	Н	-13.12	20.96	74.00	-53.04
2382.24	29.46	Ave	245	1.4	Н	-13.12	16.34	54.00	-37.66
2491.45	32.56	PK	214	1.9	V	-13.02	19.54	74.00	-54.46
2491.45	28.5	Ave	214	1.9	V	-13.02	15.48	54.00	-38.52

	Receiver	Turn	RX An	tenna	Corrected	Corrected			
Frequency	Reading	Detector	table Angle	Height	Polar	Factor	Amplitude	Limit	Margin
(MHz)	(dBµV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
	GFSK (BLE) Middle Channel								
165.38	21.56	QP	251	1.0	Н	10.59	32.15	43.53	-11.38
165.38	21.16	QP	70	2.0	V	10.59	31.75	43.53	-11.78
4882.00	44.48	PK	114	1.6	V	-0.62	43.86	74.00	-30.14
4882.00	40.23	Ave	114	1.6	V	-0.62	39.61	54.00	-14.39
7323.00	43.73	PK	332	1.5	Н	2.21	45.94	74.00	-28.06
7323.00	38.02	Ave	332	1.5	Н	2.21	40.23	54.00	-13.77
2335.48	35.54	PK	258	1.7	V	-13.19	22.35	74.00	-51.65
2335.48	30.76	Ave	258	1.7	V	-13.19	17.57	54.00	-36.43
2385.49	34.08	PK	15	1.7	Н	-13.14	20.94	74.00	-53.06
2385.49	29.05	Ave	15	1.7	Н	-13.14	15.91	54.00	-38.09
2499.22	36.32	PK	315	1.6	V	-13.08	23.24	74.00	-50.76
2499.22	30.62	Ave	315	1.6	V	-13.08	17.54	54.00	-36.46

Frequency Receiver Reading	Receiver		Turn	RX Antenna		Corrected Factor	Corrected Amplitude	Limit	Margin
	Detector	table Angle	Height	Polar					
(MHz)	(dBµV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
GFSK (BLE) High Channel									
165.38	21.96	QP	109	1.3	Н	10.59	32.55	43.53	-10.98
165.38	20.45	QP	142	1.2	V	10.59	31.04	43.53	-12.49
4960.00	42.86	PK	319	1.7	V	-0.24	42.62	74.00	-31.38
4960.00	38.49	Ave	319	1.7	V	-0.24	38.25	54.00	-15.75
7440.00	45.28	PK	120	2.0	Н	2.84	48.12	74.00	-25.88
7440.00	40.41	Ave	120	2.0	Н	2.84	43.25	54.00	-10.75
2311.01	35.14	PK	146	1.6	V	-13.19	21.95	74.00	-52.05
2311.01	30.69	Ave	146	1.6	V	-13.19	17.50	54.00	-36.50
2380.45	32.96	PK	332	1.3	Н	-13.14	19.82	74.00	-54.18
2380.45	28.82	Ave	332	1.3	Н	-13.14	15.68	54.00	-38.32
2489.67	34.97	PK	245	1.7	V	-13.08	21.89	74.00	-52.11
2489.67	29.52	Ave	245	1.7	V	-13.08	16.44	54.00	-37.56

Test Frequency: 18GHz~25GHz

The measurements were more than 20 dB below the limit and not reported.

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### 8 Band Edge Measurement

Test Requirement: Section 15.247(d) In addition, radiated emissions which fall in the

restricted bands. as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) and

15.205(c).

Test Method: 558074 D01 DTS Meas Guidance v03r05

Test Mode: Transmitting

#### 8.1 Test Produce

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

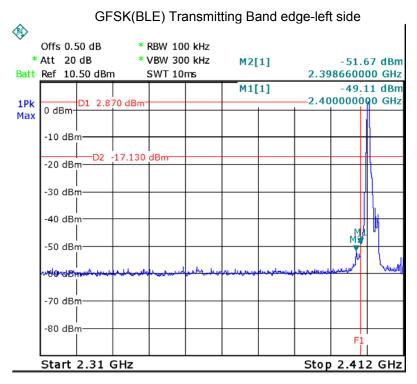
- 2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 3. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto

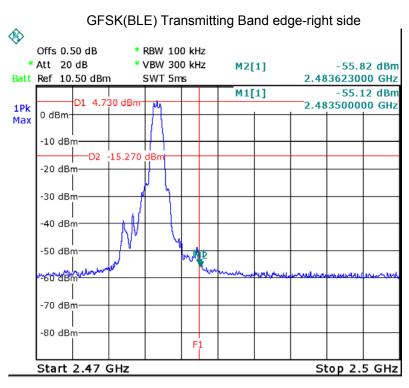
Detector function = peak, Trace = max hold

- 4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- 5. Repeat above procedures until all measured frequencies were complete.

#### 8.2 Test Result

Test plots





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#### 9 Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance v03r05

#### 9.1 Test Procedure

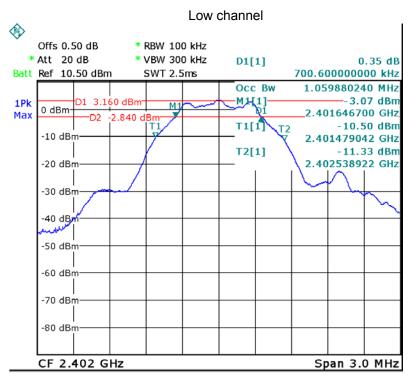
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

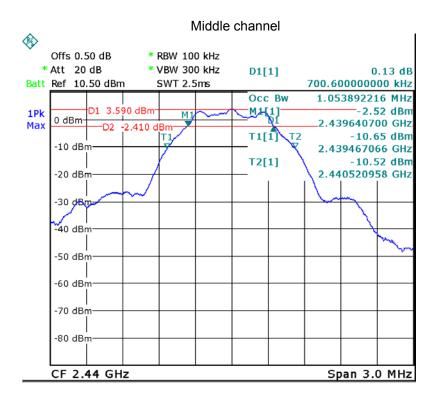
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

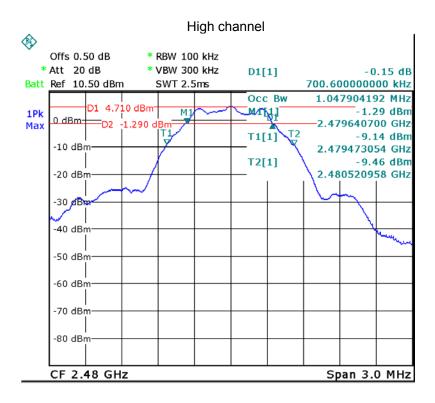
#### 9.2 Test Result:

Operation mode	6dB Bandwidth (KHz)	99% Bandwidth(MHz)		
Low channel	700.600	1.060		
Middle channel	700.600	1.054		
High channel	700.600	1.048		

#### Test result plot as follows:







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### 10 Maximum Peak Output Power

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance v03r05

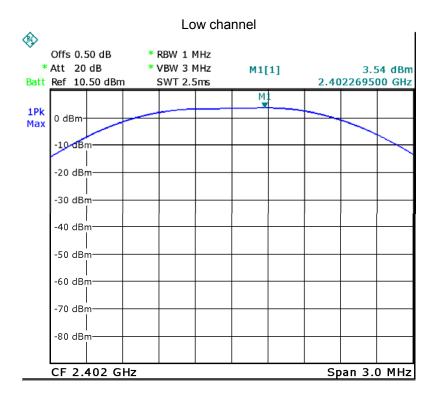
#### 10.1 Test Procedure

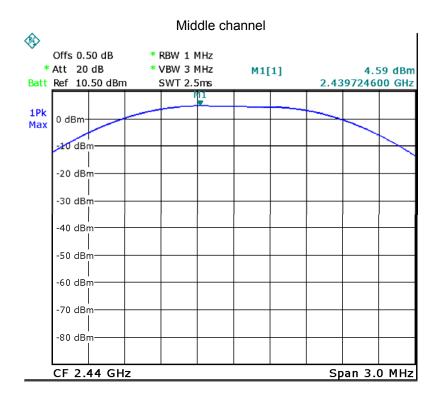
558074 D01 DTS Meas Guidance v03r05 section 9.1.1

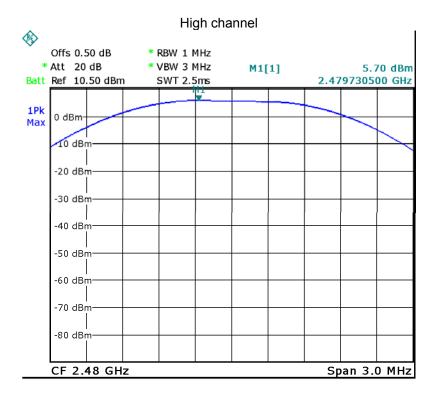
- 1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
- 2. Set the spectrum analyzer: RBW = 1MHz. VBW = 3MHz. Sweep = auto; Detector Function = Peak, Set the span to fully encompass the DTS bandwidth.
- 3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

#### 10.2 Test Result

Maximum Peak Output Power (dBm)					
Low channel Middle channel High channel					
3.54	5.70				
Limit : 1W/30dBm					







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### 11 Power Spectral density

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance v03r05

#### 11.1 Test Procedure

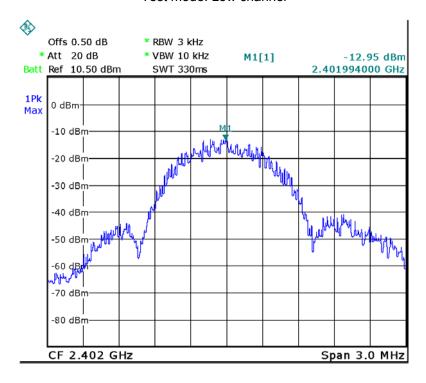
558074 D01 DTS Meas Guidance v03r05 section 10.2

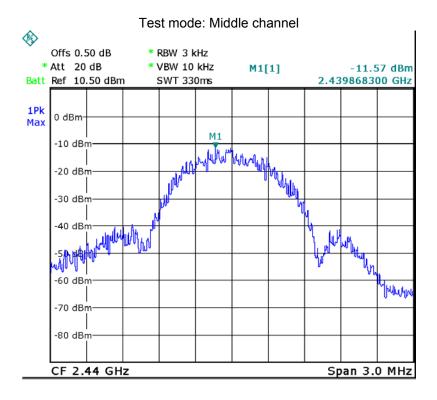
- 1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
- 2. Set the spectrum analyzer: RBW = 3kHz. VBW = 10kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.
- 3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

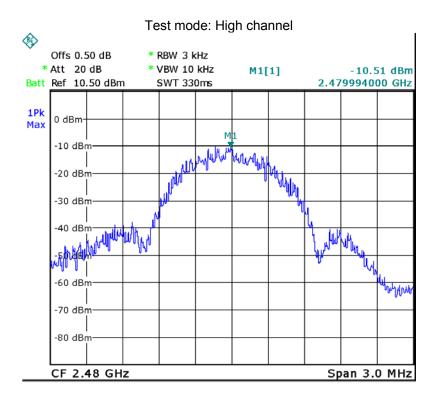
#### 11.2 Test Result

Power Spectral Density						
Low channel Middle channel High channel						
-12.95	-11.57	-10.51				
Limit : 8dBm per 3kHz						

Test mode: Low channel







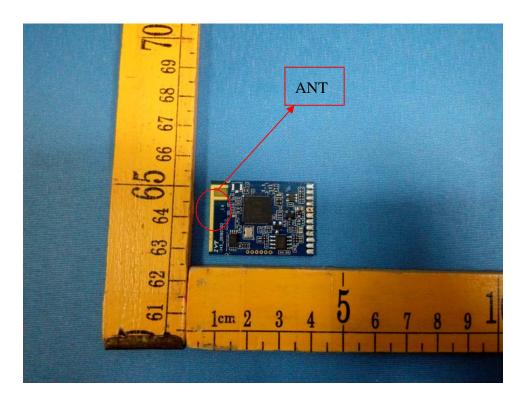
### 12 Antenna Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

#### Result:

The EUT has one PCB printed antenna, the gain is 0dBi. meets the requirements of FCC 15.203.



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### 13 RF Exposure

Test Requirement: FCC Part 1.1307

Evaluation Method: FCC Part 2.1091 & KDB 447498 D01 General RF Exposure Guidance v06

#### 13.1 Requirements

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 levels 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 0.2 m normally can be maintained between the user and the device.

#### 13.2 The procedures / limit

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz; \*Plane-wave equivalent power density

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#### 13.3 MPE Calculation Method

$$\mathbf{S} = \frac{P \times G}{4 \times \pi \times R^2}$$

S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = output power to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

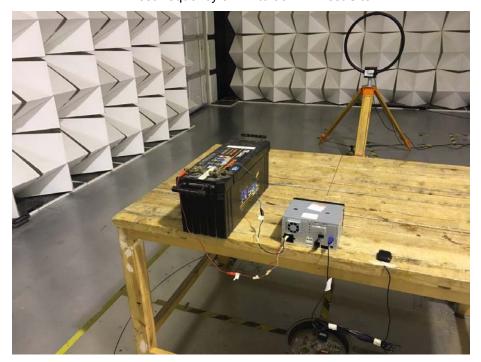
From the peak EUT RF output power, the minimum mobile separation distance, R=20cm, as well as the gain of the used antenna, the RF power density can be obtained

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)
0.00	1.000	5.70	3.72	0.000739	1

## 14 Photographs – Model CNE-8206MB-RS Test Setup Photos

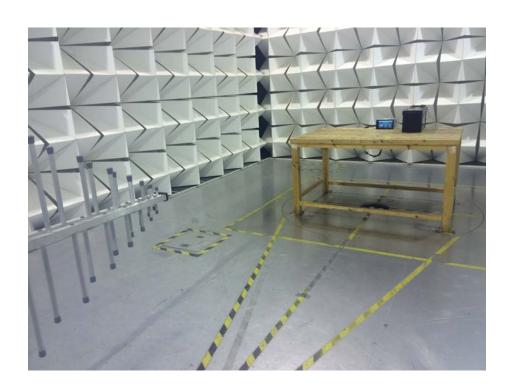
### 14.1 Photograph – Radiated Emission

Test frequency 9KHz to 30MHz Test Site 2#



Test frequency from 30MHz to 1GHz Test Site 2#

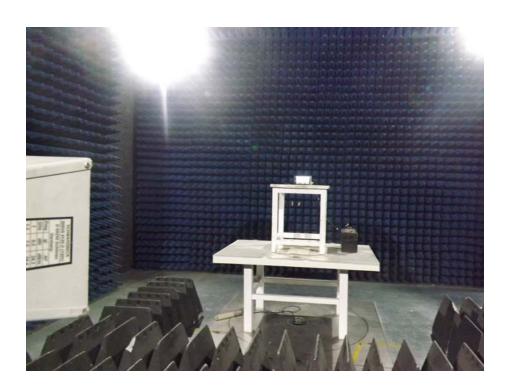




Test frequency above 1GHz Test Site 1#



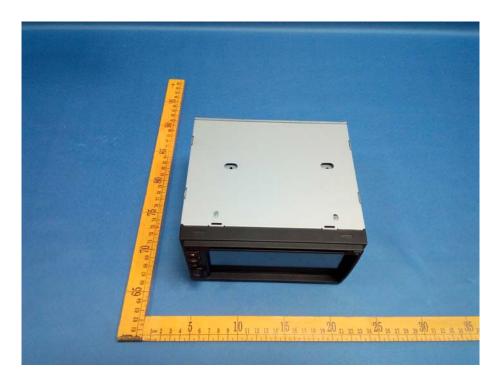
Reference No.: WTS17S0169203-1E Page 29 of 43



# 15 Photographs - Constructional Details

### 15.1 Model CNE-8206MB-RS – External Photos





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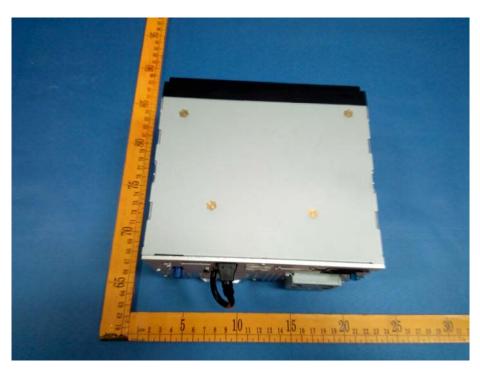


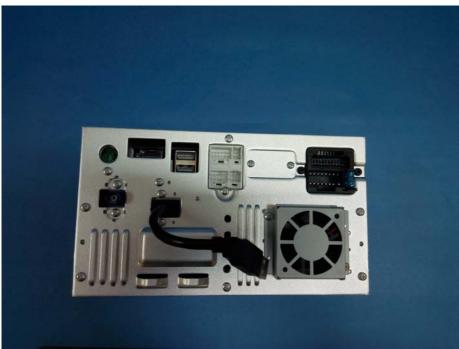
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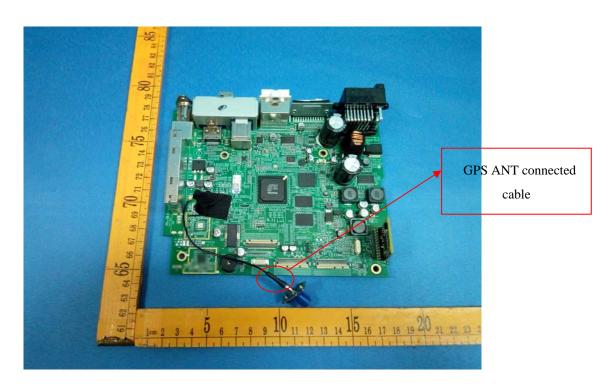




### 15.2 Model CNE-8206MB-RS -Internal Photos









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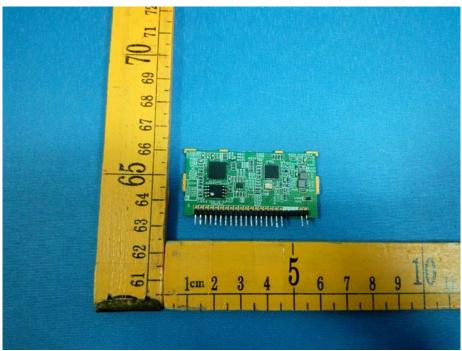
Reference No.: WTS17S0169203-2E Page 37 of 43



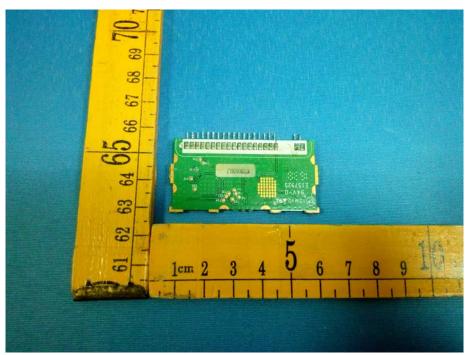


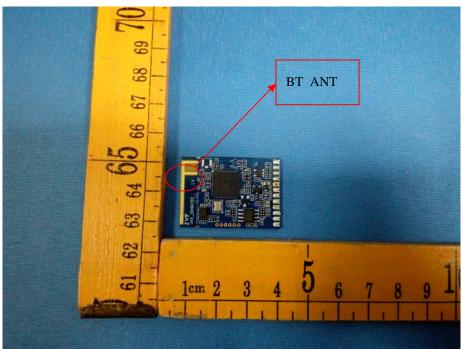
Reference No.: WTS17S0169203-2E Page 38 of 43



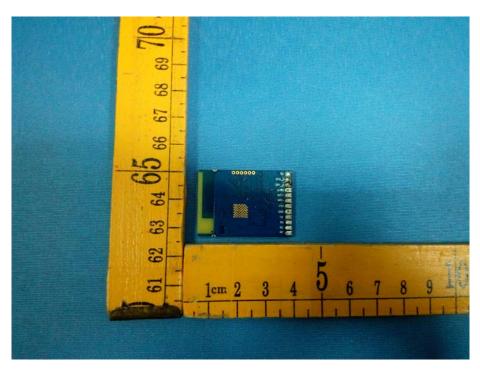


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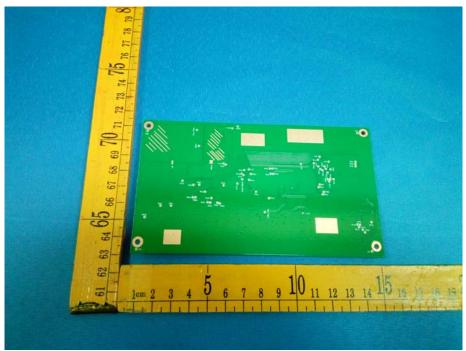
Reference No.: WTS17S0169203-2E Page 40 of 43



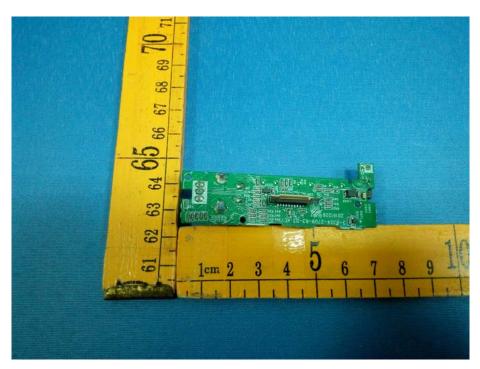


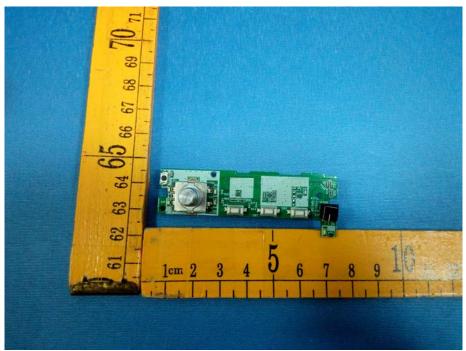
Reference No.: WTS17S0169203-2E Page 41 of 43

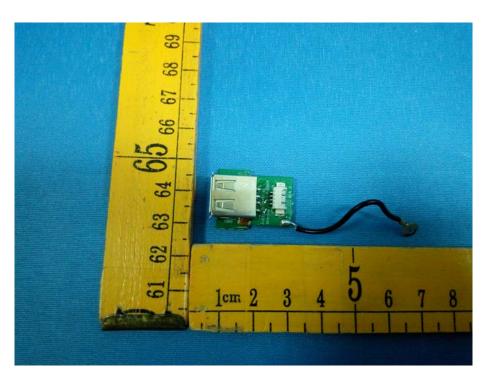


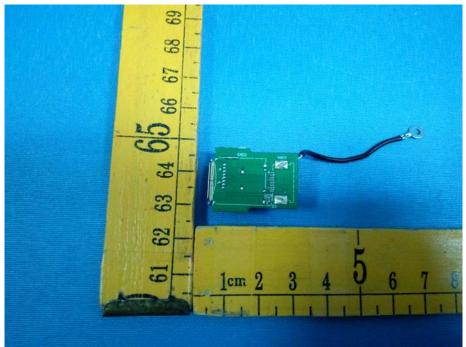


Reference No.: WTS17S0169203-2E Page 42 of 43









=====End of Report=====