



TEST REPORT

Applicant	Shenzhen Orderly Electronics Co., Ltd
Address	4F, Building7, Asian Industrial Park, Bantian Street, Longgang District, Shenzhen, China

Manufacturer or Supplier	Shenzhen Orderly Electronics Co., Ltd		
Address	4F, Building7, Asian Industrial Park, Bantian Street, Longgang District, Shenzhen, China		
Product	Bluetooth FM Transmitter		
Brand Name	blackweb& CRAIG & MAGNAVOX		
Model	BWB17AV004		
Additional Model & Model Difference	CMA3336, MMA3336; see items 3.1		
Date of tests	Aug. 18, 2017 ~ Oct. 24, 2017		

The tests have been carried out according to the requirements of the following standard:

Andy

CONCLUSION: The submitted sample was found to <u>COMPLY</u> with the test requirement

Tested by Andy Zhu	Approved by Glyn He
Project Engineer / EMC Department	Supervisor / EMC Department

Date: Nov. 07, 2017

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

Report Version 1

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Page 1 on 24



TABLE OF CONTENTS

RELEASE CONTROL RECORD	3
1 SUMMARY OF TEST RESULTS	4
2 MEASUREMENT UNCERTAINTY	4
3 GENERAL INFORMATION	5
3.1 GENERAL DESCRIPTION OF EUT	5
3.2 DESCRIPTION OF TEST MODES	6
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS	7
3.4 DESCRIPTION OF SUPPORT UNITS	7
4. TEST TYPES AND RESULTS	8
4.1 RADIATED EMISSION MEASUREMENT	8
4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT	8
4.1.2 TEST INSTRUMENTS	g
4.1.3 TEST PROCEDURES	10
4.1.4 DEVIATION FROM TEST STANDARD	11
4.1.5 TEST SETUP	11
4.1.6 EUT OPERATING CONDITIONS	12
4.1.7 TEST RESULTS	13
4.2 20dB BANDWIDTH MEASUREMENT	19
4.2.1 LIMITS OF 20dB BANDWIDTH MEASUREMENT	19
4.2.2 TEST INSTRUMENTS	19
4.2.3 TEST PROCEDURE	20
4.2.4 DEVIATION FROM TEST STANDARD	20
4.2.5 TEST SETUP	20
4.2.6 EUT OPERATING CONDITIONS	20
4.2.7 TEST RESULTS	
5 PHOTOGRAPHS OF THE TEST CONFIGURATION	
6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO BY THE LAB	



RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF170818N035-2	Original release	Nov. 07, 2017



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

5 7						
APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.239)						
STANDARD SECTION TEST TYPE AND LIMIT RESULT REMARK						
§15.203	Antenna Requirement	PASS	No antenna connector is used.			
§15.207 (a)	Conducted Emission	N/A	Power by battery			
§15.239(b) (c)	Radiated Emission	PASS	Meet the requirement of limit.			
§15.215(c)	20dB Bandwidth Test	PASS	Meet the requirement of limit.			

2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.70dB
Radiated emissions	30MHz ~ 200MHz	2.90dB
Nadiated emissions	200MHz ~1000MHz	3.83dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Fax: +86 769 8593 1080 Email: <u>DGservice@cn.bureauveritas.com</u>

Tel: +86 769 8593 5656

Page 4 on 24



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Bluetooth FM Transmitter	
MODEL NO.	BWB17AV004	
ADDITIONAL MODEL	CMA3336, MMA3336	
FCC ID	2AD5YFMBT1736	
NOMINAL VOLTAGE	DC 12V or 24V from Battery	
MODULATION TYPE	FM	
OPERATING FREQUENCY	88.1MHz ~ 107.9MHz	
NUMBER OF CHANNEL	198	
ANTENNA TYPE	Integral Antenna, 0dBi Gain	
I/O PORTS	Refer to user's manual	
DATA CABLE SUPPLIED	AUX Line: Unshielded, Detachable, 55cm	

NOTE:

- 1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- 2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
- 3. Please refer to the EUT photo document (Reference No.: 170818N035) for detailed product photo.
- 4. Additional model CMA3336, MMA3336 is identical in the electrical circuit design, layout, component used, internal wiring and outward appearance with the test model BWB17AV004 except the brand name and model no. for purpose marketing



3.2 DESCRIPTION OF TEST MODES

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and packet type. The worst case was found when the EUT was positioned on X axis for radiated emission. The EUT was tested under the following mode.

EUT CONFIGURE	APPLICABLE TO			DESCRIPTION	
MODE	RE<1G	PLC	BW	DESCRIPTION	
А	-	-	V	Power by DC 12V from Battery	
В	V			Power by DC 24V from Battery	

Where

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

BW: 20db bandwidth

NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

Following Frequency(s) was (were) selected for the test as listed below.

TESTED CHANNEL	TESTED FREQUENCY	TEST MODES	
Low	88.1 MHz	Transmitting	
Middle	98.0 MHz	Transmitting	
High	107.9 MHz	Transmitting	

Note: The more detailed channel, please refer to the product specifications

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE	23deg. C, 53%RH	DC 24V from Battery	Xue Wang
BW 23deg. C, 53%RH		DC 12V from Battery	Xue Wang
PLC -		-	-

Email: <u>DGservice@cn.bureauveritas.com</u>

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.239) ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO	PRODUCT	T BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	TF Card	d Kingston	SDC4/8GB	J4L8F-9P6T27-8X BD6	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080



4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

According to §15.239(b), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Peak] [µV/m]	Field Strength of Fundamental Emission [Average] [µV/m]
88 – 108	2500 (68 dBμV/m)	250 (48 dBμV/m)

NOTE:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emissions apply.

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Email: DGservice@cn.bureauveritas.com



4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 11,17	Mar. 10,18
Signal and Spectrum Analyzer	Rohde&Schwar z	FSV40	101094	Apr. 05,17	Apr. 04,18
Bilog Antenna (30MHz~1GHz)	Teseq	CBL 6111D	30643	Jul. 14, 17	Jul. 13, 18
Loop antenna (9KHz ~30MHz)	Daze	ZN30900A	0708	Mar. 12,17	Mar. 11,18
Horn Antenna (1GHz -18GHz)	ETS-Lindgren	3117	00062558	Jul. 02,17	Jul. 01,18
3m Semi-anechoic Chamber	ETS-LINDGRE N	9m*6m*6m	NSEMC003	Mar. 06,17	Mar. 05,18
Test Software	ADT	ADT_Radiated _V7.6.15.9.2	N/A	N/A	N/A
Horn Antenna (15GHz-40GHz)	SCHWARZBEC K	BBHA 9170	BBHA9170147	Mar. 15,17	Mar. 14,18
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Mar. 04,17	Mar. 03, 18
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBEC K	BBV9718	305	Mar. 06,17	Mar. 05,18
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,16	Nov. 03,17
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 13, 16	Oct.12, 17
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,17	Sep. 04,18
Signal and Spectrum Analyzer	Rohde&Schwar z	FSV7	102331	Nov. 04,16	Nov. 03,17
Spectrum Analyzer	Keysight	N9020A	MY55400499	Apr. 05,17	Apr. 04,18
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,16	Nov. 03,17
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec.05, 16	Dec. 04, 17
Wireless Connectivity Tester	Rohde&Schwar z	CMW270	100908	Jan. 09, 17	Jan. 08, 18
Vector Signal Generator	Rohde&Schwar z	SMBV100A	257199	Apr. 18, 17	Apr. 17, 18
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A	N/A
		l	1	l .	ı

NOTE:

- 1. The test was performed in 966 Chamber.
- 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
- 3. The horn antenna is used only for the measurement of emission frequency above1GHz if tested.
- 4. The FCC Site Registration No. is 749762

Tel: +86 769 8593 5656 Fax: +86 769 8593 1080 Email: <u>DGservice@cn.bureauveritas.com</u>

Page 9 on 24



4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters Semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using new battery. The turntable was rotated to maximize the emission level.
- g. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.

NOTE:

- 1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
- 3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
- 4. Margin value = Emission level Limit value.

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Email: DGservice@cn.bureauveritas.com

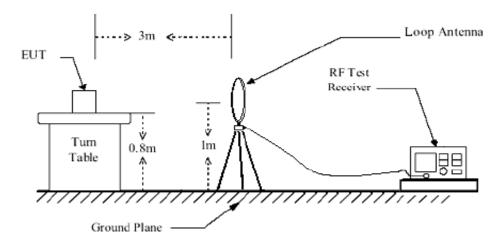


4.1.4 DEVIATION FROM TEST STANDARD

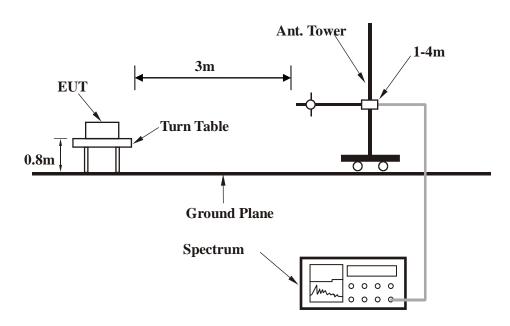
No deviation

4.1.5 TEST SETUP

Below 30MHz



Below 1GHz test setup



Note: For the actual test configuration, please refer to the attached file (Test Setup Photo).



4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Playing the music with TF Card
- c. Enable EUT under transmission condition continuously at specific channel frequency.

Tel: +86 769 8593 5656 Fax: +86 769 8593 1080 Email: <u>DGservice@cn.bureauveritas.com</u>

Page 12 on 24



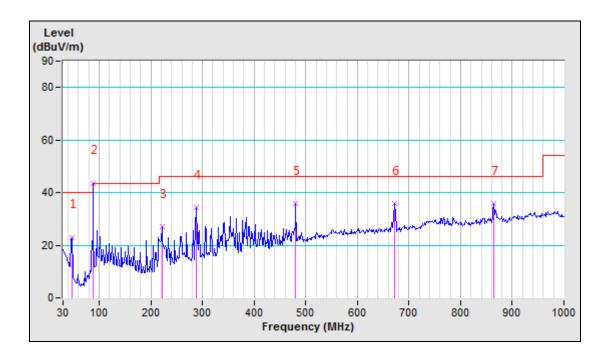
4.1.7 TEST RESULTS

Transmitting(88.1MHz)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	
1	47.10 (PK)	-20.68	43.74	23.06	40.00	-16.94	190	30	
2	88.10 (PK)	-19.87	63.52	43.65	68.00	-24.35	185	220	
3	88.10 (AV)	-19.87	63.02	43.15	48.00	-4.85	185	220	
4	221.20 (PK)	-17.72	44.86	27.14	46.00	-18.86	156	100	
5	288.04 (PK)	-13.82	48.26	34.44	46.00	-11.56	150	90	
6	480.80 (PK)	-6.69	42.44	35.75	46.00	-10.25	100	85	
7	672.00 (PK)	-2.44	38.10	35.66	46.00	-10.34	160	270	
8	864.76 (PK)	1.01	34.83	35.84	46.00	-10.16	180	230	

REMARKS:

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The emission levels of other frequencies were less than 20dB margin against the limit.
- 4. Margin value = Emission level Limit value.



Fax: +86 769 8593 1080 Email: DGservice@cn.bureauveritas.com

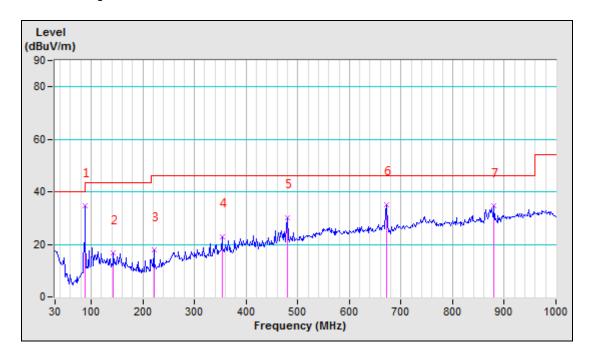
Page 13 on 24



	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	
1	88.10 (PK)	-19.87	54.66	34.79	68.00	-33.21	200	125	
2	88.10 (AV)	-19.87	54.16	34.29	48.00	-13.71	200	125	
3	143.48 (PK)	-17.07	33.80	16.73	43.50	-26.77	100	40	
4	221.20 (PK)	-17.72	35.52	17.80	46.00	-28.20	100	85	
5	353.33 (PK)	-10.72	33.77	23.05	46.00	-22.95	130	150	
6	480.80 (PK)	-6.69	36.99	30.30	46.00	-15.70	110	88	
7	672.00 (PK)	-2.44	37.68	35.24	46.00	-10.76	130	150	
8	880.30 (PK)	0.86	33.95	34.81	46.00	-11.19	160	90	

REMARKS:

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The emission levels of other frequencies were less than 20dB margin against the limit.
- 4. Margin value = Emission level Limit value.



Tel: +86 769 8593 5656 Fax: +86 769 8593 1080 Email: DGservice@cn.bureauveritas.com Page 14 on 24

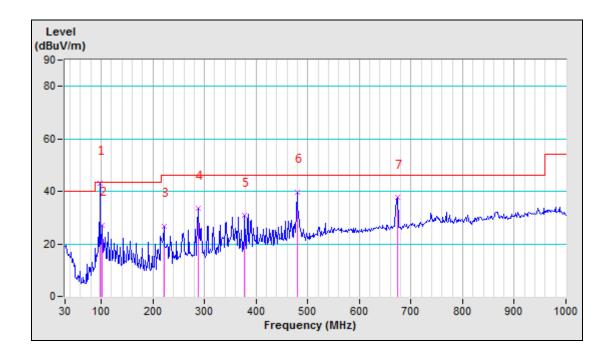


Transmitting(98MHz)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	
1	98.00 (PK)	-18.95	62.16	43.21	68.00	-24.79	176	187	
2	98.00 (AV)	-18.95	61.66	42.71	48.00	-5.29	176	187	
3	101.51 (PK)	-18.58	45.81	27.23	43.50	-16.27	200	30	
4	221.20 (PK)	-17.72	44.59	26.87	46.00	-19.13	220	180	
5	288.04 (PK)	-13.82	47.40	33.58	46.00	-12.42	190	30	
6	378.21 (PK)	-10.65	41.64	30.99	46.00	-15.01	220	80	
7	479.25 (PK)	-6.73	46.54	39.81	46.00	-6.19	200	0	
8	673.56 (PK)	-2.63	40.52	37.89	46.00	-8.11	210	90	

REMARKS:

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The emission levels of other frequencies were less than 20dB margin against the limit.
- 4. Margin value = Emission level Limit value.



Fax: +86 769 8593 1080 Email: DGservice@cn.bureauveritas.com

Tel: +86 769 8593 5656

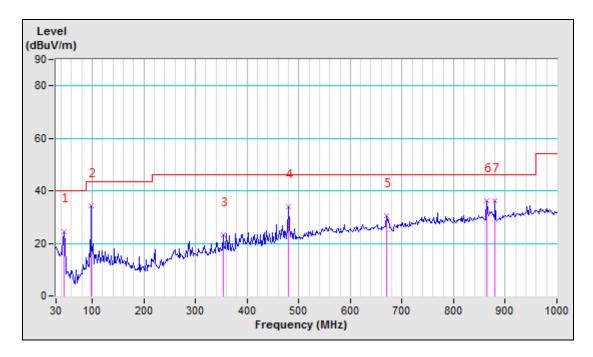
Page 15 on 24 Report Version 1



	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	
1	45.54 (PK)	-19.68	44.26	24.58	40.00	-15.42	110	0	
2	98.00 (PK)	-18.95	53.2	34.25	68.00	-33.75	210	88	
3	98.00 (AV)	-18.95	52.7	33.75	48.00	-14.25	210	88	
4	353.33 (PK)	-10.72	34.07	23.35	46.00	-22.65	130	250	
5	480.80 (PK)	-6.69	40.52	33.83	46.00	-12.17	112	160	
6	670.45 (PK)	-2.25	32.61	30.36	46.00	-15.64	130	86	
7	864.76 (PK)	1.01	35.22	36.23	46.00	-9.77	190	110	
8	880.30 (PK)	0.86	35.25	36.11	46.00	-9.89	160	230	

REMARKS:

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The emission levels of other frequencies were less than 20dB margin against the limit.
- 4. Margin value = Emission level Limit value.



Tel: +86 769 8593 5656 Fax: +86 769 8593 1080 Email: <u>DGservice@cn.bureauveritas.com</u>

Page 16 on 24 Report Version 1

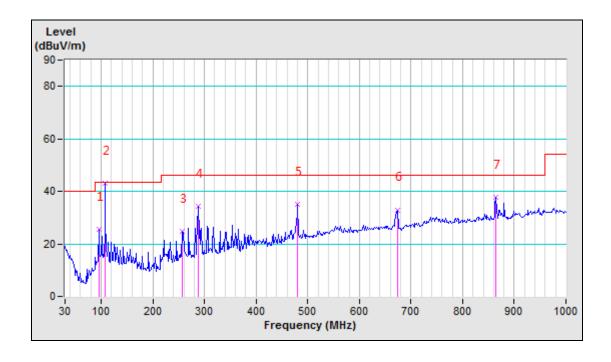


Transmitting(107.9MHz)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	
1	95.29 (PK)	-19.14	44.52	25.38	43.50	-18.12	150	60	
2	107.90 (PK)	-18.14	61.35	43.21	68.00	-24.79	190	250	
3	107.90 (AV)	-18.14	60.85	42.71	48.00	-5.29	190	250	
4	256.96 (PK)	-13.34	38.04	24.70	46.00	-21.30	100	40	
5	288.04 (PK)	-13.82	48.12	34.30	46.00	-11.70	180	90	
6	480.80 (PK)	-6.69	41.90	35.21	46.00	-10.79	210	30	
7	673.56 (PK)	-2.63	35.58	32.95	46.00	-13.05	250	55	
8	864.76 (PK)	1.01	36.60	37.61	46.00	-8.39	189	42	

REMARKS:

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The emission levels of other frequencies were less than 20dB margin against the limit.
- 4. Margin value = Emission level Limit value.



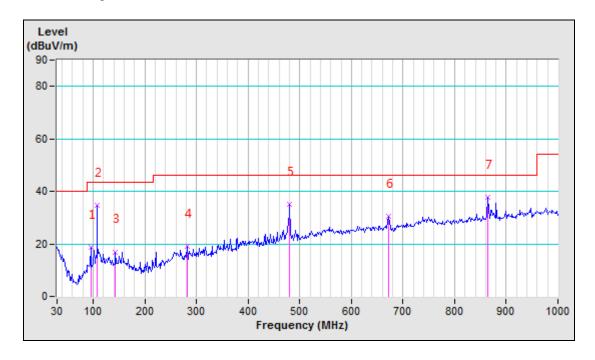
Fax: +86 769 8593 1080 Email: DGservice@cn.bureauveritas.com



	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	
1	95.29 (PK)	-19.14	37.94	18.80	43.50	-24.70	130	60	
2	107.90 (PK)	-18.14	52.7	34.56	68.00	-33.44	125	90	
3	107.90 (AV)	-18.14	52.2	34.06	48.00	-13.94	125	90	
4	143.48 (PK)	-17.07	34.03	16.96	43.50	-26.54	180	300	
5	281.83 (PK)	-14.06	33.09	19.03	46.00	-26.97	160	240	
6	480.80 (PK)	-6.69	41.90	35.21	46.00	-10.79	150	30	
7	672.00 (PK)	-2.44	32.87	30.43	46.00	-15.57	112	160	
8	864.76 (PK)	1.01	36.60	37.61	46.00	-8.39	120	300	

REMARKS:

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The emission levels of other frequencies were less than 20dB margin against the limit.
- 4. Margin value = Emission level Limit value.



Fax: +86 769 8593 1080 Email: DGservice@cn.bureauveritas.com



4.2 20dB BANDWIDTH MEASUREMENT

4.2.1 LIMITS OF 20dB BANDWIDTH MEASUREMENT

Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.

4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	May 19,17	May 18,18
Power Sensor	Keysight	U2021XA	MY55060018	May 19,17	May 18,18
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 13, 16	Oct.12, 17
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,17	Sep. 04,18
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 04,16	Nov. 03,17
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,16	Nov. 03,17
Agile Signal Generator	Agilent	8645A	Agilent	Aug.08, 17	Aug.07, 18
Spectrum Analyzer	Keysight	N9020A	MY55400499	Apr. 10,17	Apr. 09,18
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec.05, 16	Dec. 04, 17
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A	N/A

NOTE:

- 1. The test was performed in RF Oven room.
- 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

Email: DGservice@cn.bureauveritas.com Page 19 on 24

Report Version 1

Tel: +86 769 8593 5656 Fax: +86 769 8593 1080



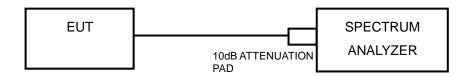
4.2.3 TEST PROCEDURE

- a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- c. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
- d. Repeat above procedures until all frequencies measured were complete.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



4.2.6 EUT OPERATING CONDITIONS

- a. Turned on the power of all equipment.
- b. Playing the music with TF Card
- c. Enable EUT under transmission condition continuously at specific channel frequency.

Tel: +86 769 8593 5656

Report Version 1

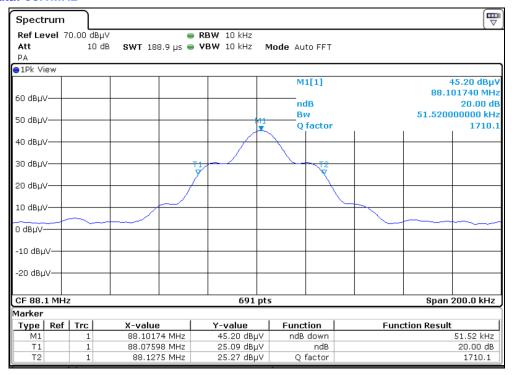
Fax: +86 769 8593 1080



4.2.7 TEST RESULTS

TEST CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (KHz)	LIMIT (KHz)
Low	88.1	51.52	200
Middle	98.0	51.23	200
High	107.9	51.23	200

Test Data: 88.1MHz

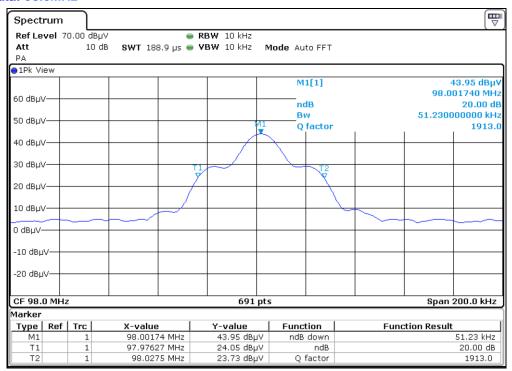


Tel: +86 769 8593 5656 Fax: +86 769 8593 1080 Email: <u>DGservice@cn.bureauveritas.com</u>

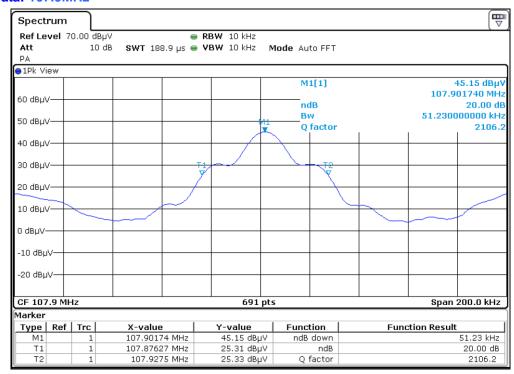
son.barcaaventas.ooi



Test Data: 98.0MHz



Test Data: 107.9MHz



Fax: +86 769 8593 1080 Email: DGservice@cn.bureauveritas.com

Page 22 on 24



5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

Tel: +86 769 8593 5656 Fax: +86 769 8593 1080 Email: <u>DGservice@cn.bureauveritas.com</u>

Page 23 on 24 Report Version 1



6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---

Tel: +86 769 8593 5656 Fax: +86 769 8593 1080 Email: <u>DGservice@cn.bureauveritas.com</u>

Report Version 1