




Test Report No.: RF2302WDG0253-2



TEST REPORT



Applicant	Bosch Security Systems Inc
Address	130 Perinton Parkway, Fairport, New York, 14450 United States

Manufacturer or Supplier	Bosch Security Systems Inc
Address	130 Perinton Parkway, Fairport, New York, 14450 United States
Product	EVERSE Powered Speaker
Brand Name	 Electro-Voice
Model	EVERSE 8
Additional Model & Model Difference	EVERSE 12, see item 3.1
Date of tests	Aug. 31, 2021 ~ Nov. 05, 2021 Mar. 25, 2023 ~ Apr. 06, 2023

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

FCC Part 15, Subpart C, Section 15.247

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Loren Luo Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	 Date: May 08, 2023

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended 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. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; 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.



Test Report No.: RF2302WDG0253-2

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
3.2.1. CONFIGURATION OF SYSTEM UNDER TEST	6
3.2.2. TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL.....	6
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS.....	8
3.4 DESCRIPTION OF SUPPORT UNITS.....	8
4 TEST TYPES AND RESULTS.....	9
4.1 RADIATED EMISSION MEASUREMENT	9
4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT	9
4.1.2 TEST INSTRUMENTS.....	10
4.1.3 TEST PROCEDURES	11
4.1.4 DEVIATION FROM TEST STANDARD	12
4.1.5 TEST SETUP	12
4.1.6 EUT OPERATING CONDITIONS	13
4.1.7 TEST RESULTS	14
5 PHOTOGRAPHS OF THE TEST CONFIGURATION.....	22
6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	23



Test Report No.: RF2302WDG0253-2

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF2108WDG0406-2	Original release	Dec. 09, 2021
RF2302WDG0253-2	<p>Based on the original report RF2108WDG0406-2 to updated:</p> <ol style="list-style-type: none">1:Increase the appearance size of the product,2.Rechange the loudspeakers model,3.Rechange the BT antenna model and antenna gain,4. Add additional model, <p>After evaluated.it needed to be retest below items:</p> <ul style="list-style-type: none">• Transmitter Spurious Emissions	May 08, 2023

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.205 15.209	Radiated Emission	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	0.15MHz ~ 30MHz	3.05dB
Radiated emissions	9KHz ~ 30MHz	2.72dB
	30MHz ~ 1GMHz	4.24dB
	1GHz ~ 18GHz	4.78dB
	18GHz ~ 40GHz	4.50dB

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

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	EVERSE Powered Speaker
MODEL NO.	EVERSE 8
ADDITIONAL MODEL	EVERSE 12
FCC ID	ESVEVERSE
NOMINAL VOLTAGE	Input: AC 100-240V~50-60Hz 1.2~0.6A Battery: 14.4V 6000mAh
MODULATION TECHNOLOGY	DTS
MODULATION TYPE	GFSK
OPERATING FREQUENCY	2402-2480MHz
PEAK OUTPUT POWER	2.244mW (Max. Measured)
ANTENNA TYPE	PCB Antenna, 4.02dBi Gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	Refer to user's manual

NOTES:

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.: 2302WDG0253) for detailed product photo.
4. The product has two colors, black and white, it's the same material and inside circuit.
5. Additional model EVERSE 12 is identical with the test model EVERSE 8 except the appearance size of the product, loudspeakers, BT antenna model and model of the product for trading purpose.

3.2 DESCRIPTION OF TEST MODES

40 channels are provided for BT-LE (GFSK):

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

3.2.1. CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photographs of the test configuration for reference.

3.2.2. TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis, power supply voltage range and antenna ports. The worst case was found when positioned on X axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE<1G	RE≥1G	PLC	APCM	
A	√	√	-	-	AC 120V/60Hz with BT Function

Where **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission

RE≥1G: Radiated Emission above 1GHz
APCM: Antenna Port Conducted Measurement



RADIATED EMISSION TEST (BELOW 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	0 to 39	39	DTS	GFSK	1

For the test results, only the worst case was shown in test report.

RADIATED EMISSION TEST (ABOVE 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	0 to 39	0,19, 39	DTS	GFSK	1

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER(POE)	TESTED BY
RE<1G	25deg. C, 53%RH	AC 120V/60Hz	Ryker
RE≥1G	25deg. C, 53%RH	AC 120V/60Hz	Ryker



Test Report No.: RF2302WDG0253-2

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, Section 15.247

558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10-2013

Note: 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 without any other necessary accessory or support units.

4 TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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).

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Spectrum Analyzer	Rohde&Schwarz	FSV3044	101326	July 20, 23
EMI Test Receiver	Rohde&Schwarz	ESU8	100372	Jun. 14, 23
Bilog Antenna	SCHWARZBECK	VULB 9168	01281	Jun. 19, 23
Pre-Amplifier	Agilent	8447D	2944A10488	Aug. 03, 23
3m Semi-anechoic Chamber	ETS-Lindgren	9m*6m*6m	D3040003DG-1	July 30, 24
Coaxial RF Cable	Joinfront	JFAA6-NMNM-8000	2100033742	July. 11, 23
Coaxial RF Cable	Joinfront	JFAR-NMBNCM-2000	2100033742	July. 11, 23
Coaxial RF Cable	Joinfront	JFAR-BNCMSMM-500	2100033742	July. 11, 23
Test software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A
Horn Antenna	ETS-Lindgren	3117	00240041	Jun. 19, 23
Horn Antenna	SCHWARZBECK	BBHA 9170	01024	Oct. 16, 23
Pre-Amplifier (1GHz-18GHz)	SCHWARZBECK	BBV 9718C	00142	Jun. 14, 23
Pre-Amplifier (18GHz-40GHz)	Rohde&Schwarz	SCU40	100437	Oct. 27, 23
Coaxial RF Cable	Joinfront	JFAA6-NMNM-8000	2100033742	July. 11, 23
Coaxial RF Cable	Joinfront	JFAA6-NMSMM-2000	2100033742	July. 11, 23
Coaxial RF Cable	Joinfront	JFAA6-NMSMM-800	2100033742	July. 11, 23

NOTES:

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 above 1GHz if tested.
4. The FCC Site Registration No. is 749762.
5. Test site: No. 122, Houjie Avenue West Houjie Town, Dongguan City Guangdong Province, 523960, People's Republic of China.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) above the ground at a 3 meters semi-anechoic chamber. 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 antenna is a broadband antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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 1.3m above the ground.
- g. 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 fresh batteries. The turntable was rotated to maximize the emission level.

NOTE:

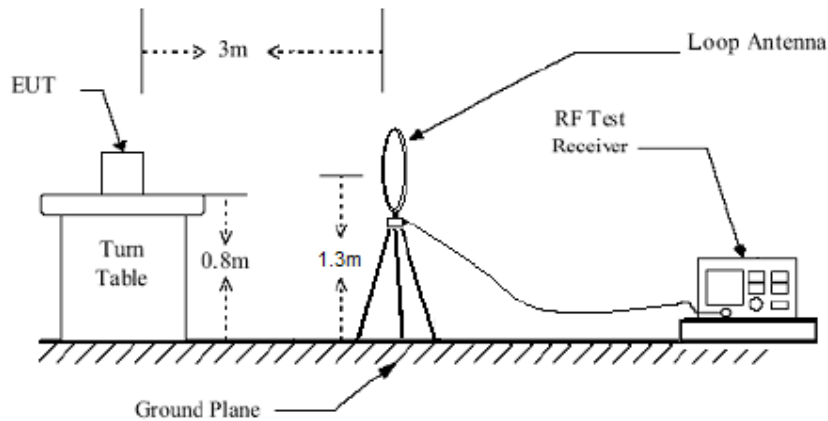
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

4.1.4 DEVIATION FROM TEST STANDARD

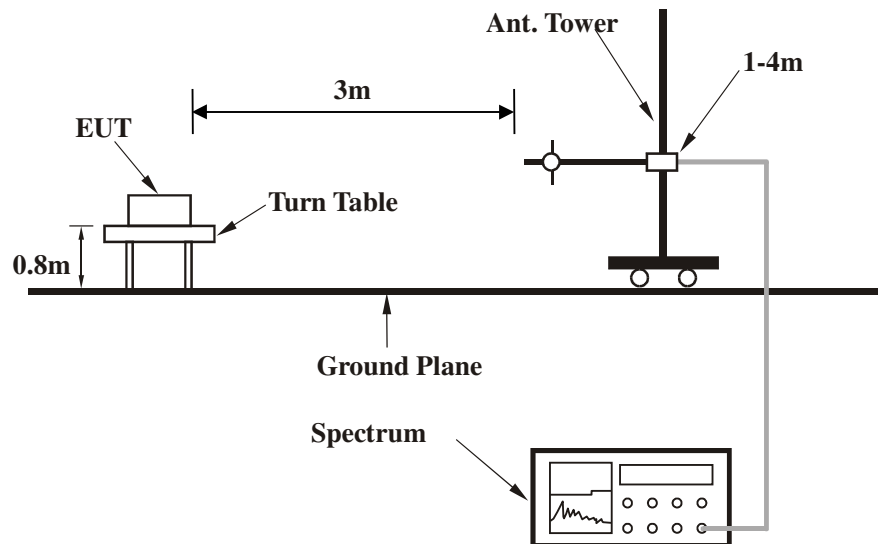
No deviation.

4.1.5 TEST SETUP

Below 30MHz test setup

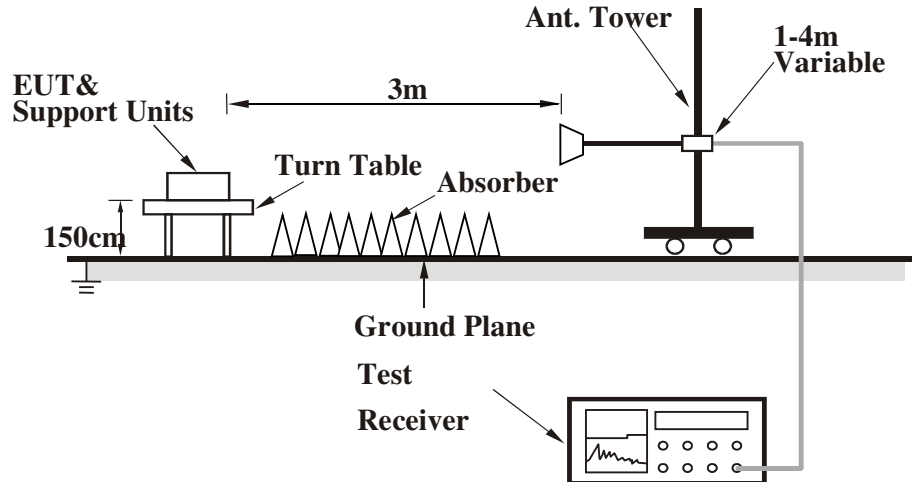


Below 1GHz test setup



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

Above 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. Set the EUT under full load condition and placed them on a testing table.
- b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- c. The necessary accessories enable the EUT in full functions.

4.1.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

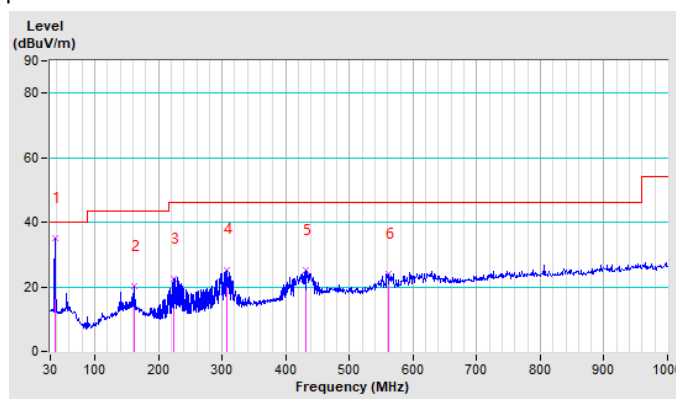
BT_LE-GFSK

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	36.79	35.03 QP	40.00	-4.97	1.00 H	26	49.92	-14.89
2	160.95	20.31 QP	43.50	-23.19	1.00 H	51	33.40	-13.09
3	224.00	22.43 QP	46.00	-23.57	1.00 H	122	37.39	-14.96
4	307.42	25.33 QP	46.00	-20.67	1.00 H	10	37.31	-11.98
5	431.58	25.31 QP	46.00	-20.69	1.00 H	203	34.82	-9.51
6	562.53	24.12 QP	46.00	-21.88	1.00 H	114	31.44	-7.32

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

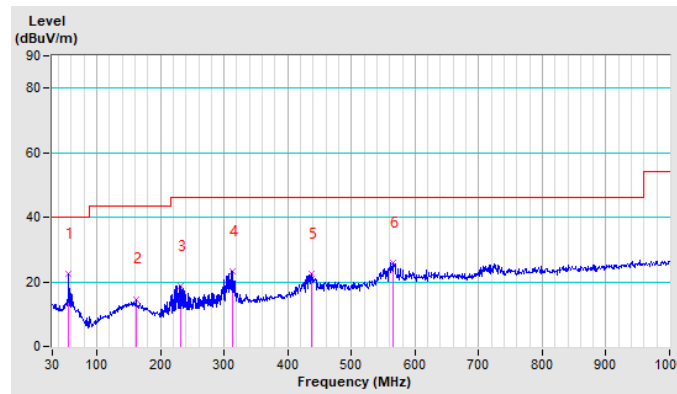


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	55.22	22.56 QP	40.00	-17.44	1.00 V	124	36.44	-13.88
2	160.95	14.65 QP	43.50	-28.85	1.00 V	176	27.74	-13.09
3	231.76	18.70 QP	46.00	-27.30	1.00 V	36	33.31	-14.61
4	313.24	23.09 QP	46.00	-22.91	1.00 V	116	34.98	-11.89
5	436.43	22.36 QP	46.00	-23.64	1.00 V	27	31.72	-9.36
6	565.44	25.86 QP	46.00	-20.14	1.00 V	84	33.10	-7.24

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.





ABOVE 1GHz TEST DATA:

BT-LE (GFSK) 1M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	45.29 PK	74.00	-28.71	1.20 H	140	43.73	1.56
2	2390.00	32.05 AV	54.00	-21.95	1.20 H	140	30.49	1.56
3	*2402.00	90.02 PK			1.20 H	140	88.46	1.56
4	*2402.00	85.56 AV			1.20 H	140	84.00	1.56
5	4804.00	51.12 PK	74.00	-22.88	1.56 H	245	43.88	7.24
6	4804.00	38.21 AV	54.00	-15.79	1.56 H	245	30.97	7.24
7	7206.00	53.56 PK	74.00	-20.44	1.56 H	321	42.11	11.45
8	7206.00	39.61 AV	54.00	-14.39	1.56 H	321	28.16	11.45

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	44.63 PK	74.00	-29.37	1.20 V	130	43.07	1.56
2	2390.00	33.82 AV	54.00	-20.18	1.20 V	130	32.26	1.56
3	*2402.00	91.61 PK			1.20 V	130	90.05	1.56
4	*2402.00	88.85 AV			1.20 V	130	87.29	1.56
5	4804.00	53.66 PK	74.00	-20.34	1.56 V	147	46.42	7.24
6	4804.00	39.41 AV	54.00	-14.59	1.56 V	147	32.17	7.24
7	7206.00	54.25 PK	74.00	-19.75	1.59 V	360	42.80	11.45
8	7206.00	38.92 AV	54.00	-15.08	1.59 V	360	27.47	11.45

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2441.00	90.71 PK			1.20 H	130	89.13	1.58
2	*2441.00	85.62 AV			1.20 H	130	84.04	1.58
3	4882.00	50.90 PK	74.00	-23.10	1.45 H	169	43.24	7.66
4	4882.00	38.64 AV	54.00	-15.36	1.45 H	169	30.98	7.66
5	7323.00	51.33 PK	74.00	-22.67	1.45 H	360	39.74	11.59
6	7323.00	39.29 AV	54.00	-14.71	1.45 H	360	27.70	11.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2441.00	90.23 PK			1.20 V	180	88.65	1.58
2	*2441.00	86.77 AV			1.20 V	180	85.19	1.58
3	4882.00	51.23 PK	74.00	-22.77	1.62 V	145	43.57	7.66
4	4882.00	38.66 AV	54.00	-15.34	1.62 V	145	31.00	7.66
5	7323.00	52.74 PK	74.00	-21.26	1.45 V	167	41.15	11.59
6	7323.00	38.28 AV	54.00	-15.72	1.45 V	167	26.69	11.59

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



Test Report No.: RF2302WDG0253-2

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	90.31 PK			1.20 H	130	88.72	1.59
2	*2480.00	88.67 AV			1.20 H	130	87.08	1.59
3	2483.50	42.11 PK	74.00	-31.89	1.20 H	130	40.52	1.59
4	2483.50	30.97 AV	54.00	-23.03	1.20 H	130	29.38	1.59
5	4960.00	50.62 PK	74.00	-23.38	1.59 H	321	42.55	8.07
6	4960.00	37.32 AV	54.00	-16.68	1.59 H	321	29.25	8.07
7	7440.00	50.87 PK	74.00	-23.13	1.52 H	199	39.13	11.74
8	7440.00	36.61 AV	54.00	-17.39	1.52 H	199	24.87	11.74
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	91.38 PK			1.20 V	130	89.79	1.59
2	*2480.00	87.29 AV			1.20 V	130	85.70	1.59
3	2483.50	43.16 PK	74.00	-30.84	1.20 V	130	41.57	1.59
4	2483.50	31.82 AV	54.00	-22.18	1.20 V	130	30.23	1.59
5	4960.00	51.13 PK	74.00	-22.87	1.45 V	178	43.06	8.07
6	4960.00	36.28 AV	54.00	-17.72	1.45 V	178	28.21	8.07
7	7440.00	52.81 PK	74.00	-21.19	1.69 V	52	41.07	11.74
8	7440.00	37.68 AV	54.00	-16.32	1.69 V	52	25.94	11.74

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.

Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com



**BUREAU
VERITAS**

Test Report No.: RF2302WDG0253-2

BT-LE (GFSK) 2M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	47.67 PK	74.00	-26.33	1.20 H	130	46.11	1.56
2	2390.00	31.94 AV	54.00	-22.06	1.20 H	130	30.38	1.56
3	*2402.00	86.57 PK			1.20 H	130	85.01	1.56
4	*2402.00	71.85 AV			1.20 H	130	70.29	1.56
5	4804.00	50.33 PK	74.00	-23.67	1.58 H	62	43.09	7.24
6	4804.00	35.61 AV	54.00	-18.39	1.58 H	62	28.37	7.24
7	7206.00	51.36 PK	74.00	-22.64	1.30 H	85	39.91	11.45
8	7206.00	36.21 AV	54.00	-17.79	1.30 H	85	24.76	11.45

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	46.34 PK	74.00	-27.66	1.58 V	169	44.78	1.56
2	2390.00	32.81 AV	54.00	-21.19	1.58 V	169	31.25	1.56
3	*2402.00	88.71 PK			1.58 V	169	87.15	1.56
4	*2402.00	72.65 AV			1.58 V	169	71.09	1.56
5	4804.00	51.30 PK	74.00	-22.70	1.46 V	325	44.06	7.24
6	4804.00	34.80 AV	54.00	-19.20	1.46 V	325	27.56	7.24
7	7206.00	50.61 PK	74.00	-23.39	1.46 V	32	39.16	11.45
8	7206.00	35.82 AV	54.00	-18.18	1.46 V	32	24.37	11.45

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2441.00	85.61 PK			1.56 H	325	84.03	1.58
2	*2441.00	70.33 AV			1.56 H	325	68.75	1.58
3	4882.00	49.63 PK	74.00	-24.37	1.45 H	123	41.97	7.66
4	4882.00	34.28 AV	54.00	-19.72	1.45 H	123	26.62	7.66
5	7323.00	49.73 PK	74.00	-24.27	1.50 H	160	38.14	11.59
6	7323.00	35.21 AV	54.00	-18.79	1.50 H	160	23.62	11.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2441.00	86.13 PK			1.20 V	140	84.55	1.58
2	*2441.00	71.28 AV			1.20 V	140	69.70	1.58
3	4882.00	50.82 PK	74.00	-23.18	1.25 V	169	43.16	7.66
4	4882.00	35.89 AV	54.00	-18.11	1.25 V	169	28.23	7.66
5	7323.00	49.62 PK	74.00	-24.38	1.45 V	36	38.03	11.59
6	7323.00	35.39 AV	54.00	-18.61	1.45 V	36	23.80	11.59

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



Test Report No.: RF2302WDG0253-2

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	84.36 PK			1.10 H	120	82.77	1.59
2	*2480.00	72.71 AV			1.10 H	120	71.12	1.59
3	2483.50	46.22 PK	74.00	-27.78	1.10 H	120	44.63	1.59
4	2483.50	33.21 AV	54.00	-20.79	1.10 H	120	31.62	1.59
5	4960.00	50.26 PK	74.00	-23.74	1.59 H	147	42.19	8.07
6	4960.00	36.21 AV	54.00	-17.79	1.59 H	147	28.14	8.07
7	7440.00	49.63 PK	74.00	-24.37	1.36 H	258	37.89	11.74
8	7440.00	34.88 AV	54.00	-19.12	1.36 H	258	23.14	11.74
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	85.66 PK			1.20 V	130	84.07	1.59
2	*2480.00	71.96 AV			1.20 V	130	70.37	1.59
3	2483.50	45.36 PK	74.00	-28.64	1.20 V	130	43.77	1.59
4	2483.50	34.28 AV	54.00	-19.72	1.20 V	130	32.69	1.59
5	4960.00	51.88 PK	74.00	-22.12	2.36 V	148	43.81	8.07
6	4960.00	37.63 AV	54.00	-16.37	2.36 V	148	29.56	8.07
7	7440.00	50.28 PK	74.00	-23.72	1.36 V	218	38.54	11.74
8	7440.00	36.71 AV	54.00	-17.29	1.36 V	218	24.97	11.74

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.

Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie
Town, Dongguan City, Guangdong Province.
523942. People's Republic of China.

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@bureauveritas.com



Test Report No.: RF2302WDG0253-2

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



Test Report No.: RF2302WDG0253-2

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---