FCC Test Report

FCC ID: ROC-RD8625R

This report concerns (check one) : ■ **Original** □ **Class I Change**

Issued Date	:	Jun. 17, 2011
Project No.	:	1106C018
Equipment	:	RECORDABLE PARTY DOORBELL
Model Name	:	RD8625R
Applicant	:	HPI Hong Kong Limited
Address	:	Unit 1715-18, 17/F., Corporation Square 8 Lam Lok Street Kowloon Bay Hong Kong
Manufacturer	:	General Tech Electronics Ltd
Address	:	No.3 Gongyequ Baishegang,Chang Ping Town Dongguan, Guangdong, China PRC

Tested by:
Neutron Engineering Inc. EMC Laboratory
Date of Receipt: Jun. 02, 2011
Date of Test:
Jun. 02, 2011 ~ Jun. 16, 2011

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Declaration

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1. VERIFICATION

Equipment:	RECORDABLE PARTY DOORBELL
Brand Name:	N/A
Model Name:	RD8625R
Applicant:	HPI Hong Kong Limited
Factory:	General Tech Electronics Ltd
Address:	Gongyequ Baishegang,Chang Ping Town Dongguan, Guangdong, China PRC
Date of Test:	Jun. 02, 2011 ~ Jun. 16, 2011
Standards:	FCC Part 15, Subpart B ANSI C63.4-2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCE-1-1106C018) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part15, Subpart B	Conducted Emission	-	N/A	Note(1)
	Radiated Emission	Class B	PASS	

NOTE:

(1) ” N/A” denotes test is not applicable in this Test Report.

(2) Test sample function is only receiver and used new battery.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-C01/DG-CB08**at the location of No.3,Jinshagang 1st Road, ShiXia, Dalang Town,Dong Guan, China.523792.

2.2 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:

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95**%。

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
DG-C01	CISPR	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U，(dB)	NOTE
DG-CB08	CISPR	30MHz ~ 1000MHz	V	3.57	
		30MHz ~ 1000MHz	H	3.96	
		1GHz~18GHz	V	3.07	
		1GHz~18GHz	H	3.62	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	RECORDABLE PARTY DOORBELL
Brand Name	N/A
Model Name	RD8625R
FCC ID	ROC-RD8625R
Model Difference	N/A
OEM Brand/Model Name	N/A
Product Description	The EUT is a RECORDABLE PARTY DOORBELL. More details of EUT technical specification please refer to the User's Manual.
Power Source	DC Voltage supplied from Battery (RX Sample)
Power Rating	DC 6.0V (RX Sample)
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	N/A
EUT Modification(s)	N/A

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Stabilize the receiver by transmitting an unmodulated carrier on the receiver frequency from an antenna in the proximity of the receiver, vary the amplitude and frequency of the stabilizing signal to obtain the highest level of the spurious emissions from the receiver.

3.2 DESCRIPTION OF TEST MODES

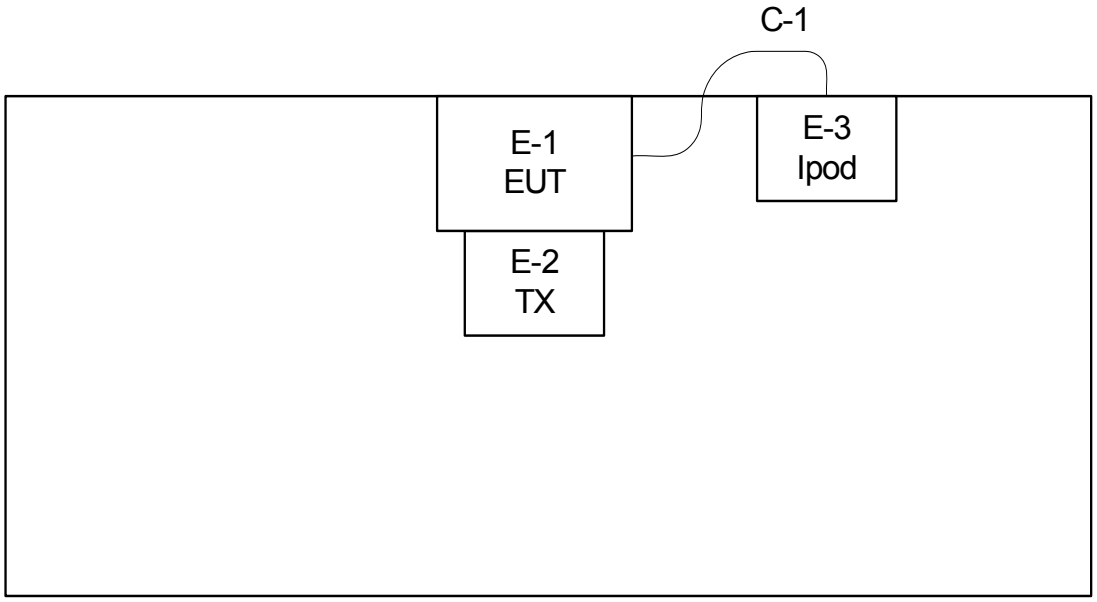
To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	RX Mode

For Radiated Test	
Final Test Mode	Description
Mode 1	RX Mode

Note:
(1) The EUT used the new battery

3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



C-1 : Audio Cable

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.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	RECORDABLE PARTY DOORBELL	N/A	ROC-RD8625R	5996A-RD8625R	N/A	EUT
E-2	Recordable Doorbell	N/A	ROC-RD8625T	5996A-RD8625T	N/A	TX
E-3	iPod nano(8G)	Apple	A1320	DOC	YM945ZGJ72A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	YES	NO	1.5M	

Note:

(1) The support equipment was authorized by Declaration of Conformity.
(2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION (FREQUENCY RANGE 150KHZ-30MHZ)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 – 56 *	56 – 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2SH	00052766	May.26.2012
2	LISN	R&S	ENV216	100526	May.26.2012
3	Test Cable	N/A	C_19	N/A	Mar.18.2012
4	EMI TEST RECEIVER	R&S	ESCI	100895	May.26.2012
5	50Ω Terminator	SHX	TF2-3G-A	08122901	May.26.2012

Remark: " N/A" denotes No Model Name, Serial No. or No Calibration specified.

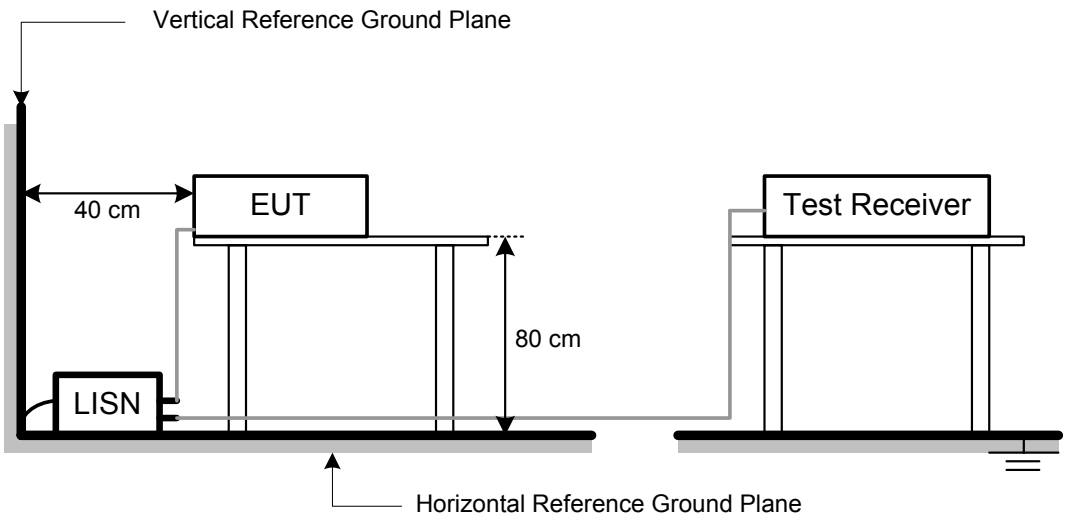
4.1.3 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –Block Diagram of system tested (please refer to 3.3).

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



4.1.6 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use. The program contained on a PC hard disk and is auto-starting on power-up. Once loaded, the program sequentially exercises each system component in turn.
The EUT continue receiver signal from TX sample

4.1.7 TEST RESULTS

EUT：	RECORDABLE PARTY DOORBELL	Model Name. ：	RD8625R
Temperature：	---	Relative Humidity：	---
Pressure：	---	Test Power ：	---
Test Mode ：	N/A - denotes test is not applicable in this test report		

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(2) Measuring frequency range from 150KHz to 30MHz。

(3) N/A - denotes test is not applicable in this test report

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	at 3m (dBuV/m)
30 – 88	40
88 – 216	43.5
216 - 960	46
960 - 1000	54

Notes:

(1) The limit for radiated test was performed according to as following: FCC PART 15B .

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	57

Notes:

(1) The limit for radiated test was performed according to FCC PART 15B.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

4.2.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Jun .04.2012
2	Amplifier	HP	8447D	2944A09673	May.26.2012
3	Test Receiver	R&S	ESCI	100382	May.26.2012
4	Test Cable	N/A	C-01_CB03	N/A	Jul.06.2011
5	Controller	CT	SC100	N/A	N/A
6	Antenna	ETS	3115	00075789	May.26.2012
7	Amplifier	Agilent	8449B	3008A02274	May.26.2012
8	Spectrum	Agilent	E4408B	US39240143	Nov.26.2011
9	Test Cable	HUBER+SUHNER	C-45	N/A	May.04.2012
10	Controller	CT	SC100	N/A	N/A

Remark: ” N/A” denotes No Model Name / Serial No. and No Calibration specified.

4.2.3 TEST PROCEDURE

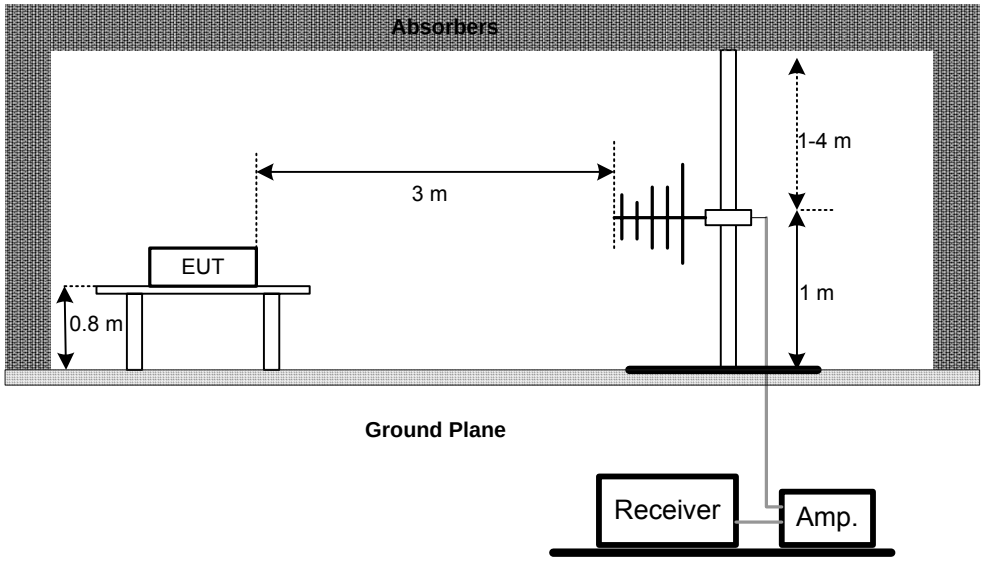
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting radiated emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –Block Diagram of system tested (please refer to 3.3).

4.2.4 DEVIATION FROM TEST STANDARD

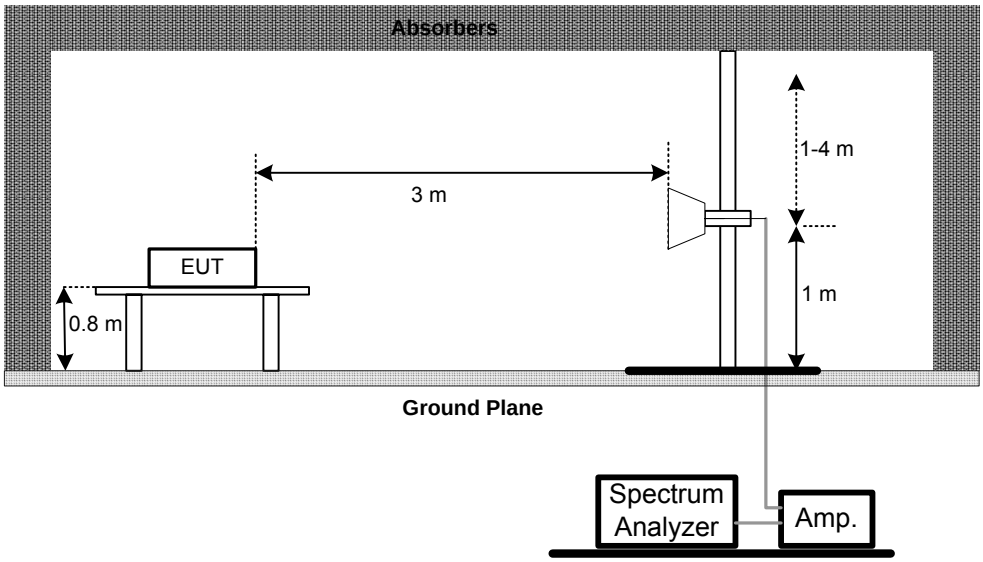
No deviation

4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



4.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.7** Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.7 TEST RESULTS (30-1000 MHZ)

EUT：	RECORDABLE PARTY DOORBELL	Model Name. ：	RD8625R
Temperature：	27 ℃	Relative Humidity：	47 %
Pressure：	1010 hPa	Test Power ：	DC 6.0V
Test Mode ：	RX Mode		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
328.28	V	49.71	-14.89	34.82	46.00	- 11.18	
350.10	V	51.62	-14.33	37.29	46.00	- 8.71	
427.70	V	57.18	-12.30	44.88	46.00	- 1.12	(QP)
459.23	V	49.40	-11.52	37.88	46.00	- 8.12	
481.05	V	48.65	-11.14	37.51	46.00	- 8.49	
653.23	V	43.23	-7.79	35.44	46.00	- 10.56	

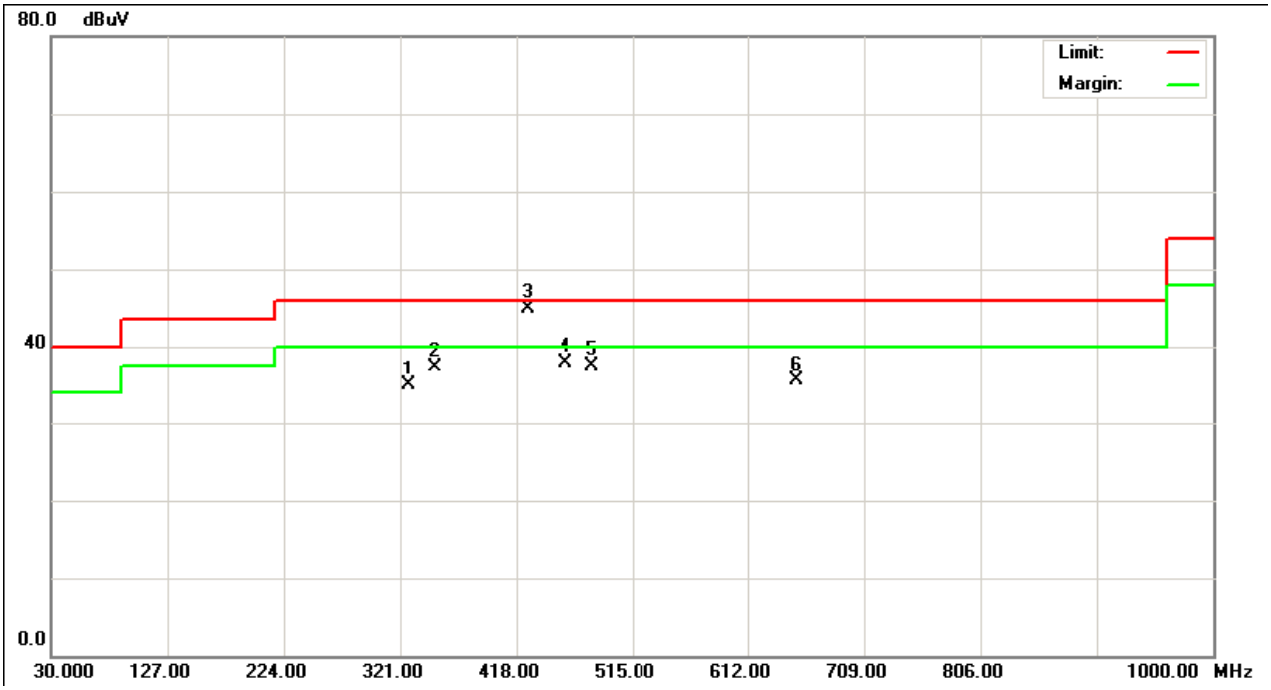
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



EUT：	RECORDABLE PARTY DOORBELL	Model Name. ：	RD8625R
Temperature：	27 ℃	Relative Humidity：	47 %
Pressure：	1010 hPa	Test Power ：	DC 6.0V
Test Mode ：	RX Mode		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
131.85	H	46.99	-17.44	29.55	43.50	- 13.95	
202.18	H	48.32	-19.22	29.10	43.50	- 14.40	
328.28	H	48.54	-14.89	33.65	46.00	- 12.35	
350.10	H	50.26	-14.33	35.93	46.00	- 10.07	
371.93	H	48.46	-13.79	34.67	46.00	- 11.33	
427.70	H	45.79	-12.30	33.49	46.00	- 12.51	

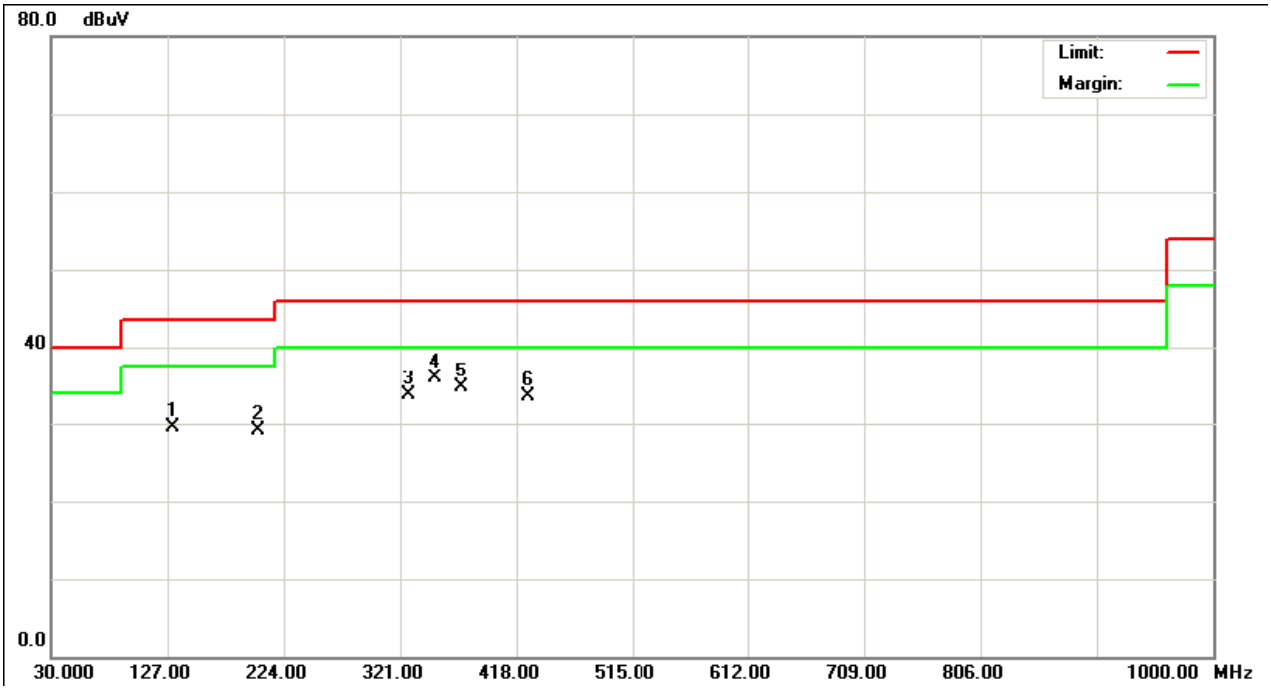
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



4.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT：	RECORDABLE PARTY DOORBELL	Model Name. ：	RD8625R
Temperature：	27 ℃	Relative Humidity：	47 %
Pressure：	1010 hPa	Test Power ：	DC 6.0V
Test Mode ：	RX Mode		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
1297.11	V	61.25	52.55	-7.44	53.81	45.11	74.00	54.00	Z/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 1000MHz to 6000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

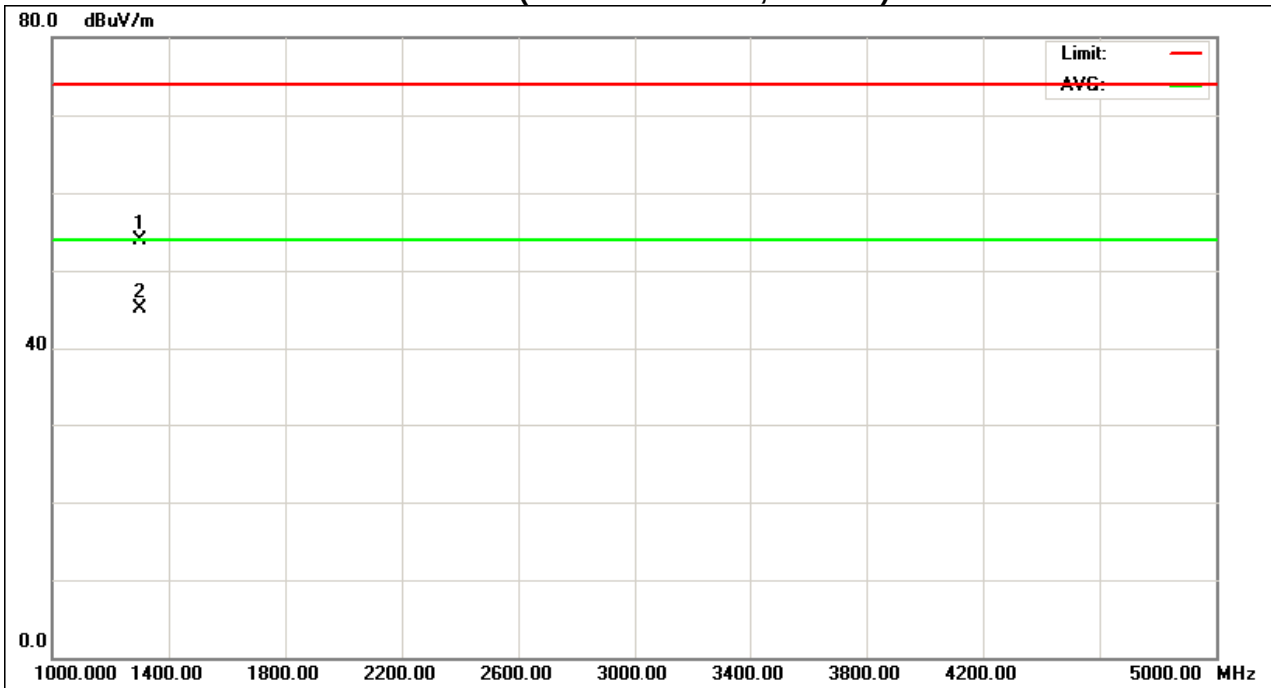
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

RX Mode (Above 1000 MHz, Vertical)



EUT：	RECORDABLE PARTY DOORBELL	Model Name. ：	RD8625R
Temperature：	27 ℃	Relative Humidity：	47 %
Pressure：	1010 hPa	Test Power ：	DC 6.0V
Test Mode ：	RX Mode		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
1297.82	H	55.26	47.50	-7.44	47.82	40.06	74.00	54.00	Z/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 1000MHz to 6000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

RX Mode(Above 1000 MHz, Horizontal)