

TEST REPORT

Reference No...... : WTF23D12272911W001
FCC ID : 2BCDM-FRANK
Applicant..... : Guangzhou Bochong Technology Co., Ltd
Address..... : Unit 2270, No. 283-2, Tongsha Road, Tonghe Street, Baiyun District, Guangzhou City, China
Manufacturer : Guangzhou Bochong Technology Co., Ltd
Address..... : Unit 2270, No. 283-2, Tongsha Road, Tonghe Street, Baiyun District, Guangzhou City, China
Product..... : Smart Cat Litter Box
Model(s) : FRANK, FRW, REM, REW, REM1, REW1
Standards..... : FCC 47CFR Part 15.247
Date of Receipt sample : 2024-01-12
Date of Test : 2024-01-12 to 2024-02-26
Date of Issue..... : 2024-05-07
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:
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The logo is a circular seal for Waltek Testing Group Co., Ltd. It features a stylized 'W' and 'T' in the center, with the word 'WALTEK' below it. The outer ring of the seal contains the text 'WALTEK TESTING GROUP CO., LTD.' and 'TEST REPORT' at the bottom.

Deval Qin / Designated Reviewer

2 Contents

	Page
1 COVER PAGE.....	1
2 CONTENTS.....	2
3 REVISION HISTORY.....	3
4 GENERAL INFORMATION.....	4
4.1 General Description of E.U.T.....	4
4.2 Details of E.U.T.....	4
4.3 Channel List.....	5
4.4 Test Facility.....	5
4.5 Subcontracted.....	5
4.6 Abnormalities from Standard Conditions.....	5
4.7 Test Mode.....	6
5 TEST SUMMARY.....	7
6 EQUIPMENT USED DURING TEST.....	8
6.1 Equipments List.....	8
6.2 Measurement Uncertainty.....	8
7 RADIATED EMISSIONS.....	9
7.1 EUT Operation.....	9
7.2 Test Setup.....	10
7.3 Spectrum Analyzer Setup.....	11
7.4 Test Procedure.....	12
7.5 Corrected Amplitude & Margin Calculation.....	12
7.6 Summary of Test Results.....	13
8 PHOTOGRAPHS OF TEST SETUP AND EUT.....	16

3 Revision History

Test Report No.	Date of Receipt Sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTF23D12272911W001	2024-01-12	2024-01-12 to 2024-02-26	2024-05-07	Original	-	Valid
Note: This report is based on WTF23D08185189W002 to update models. The test item spurious emissions of new model REW were added and recorded in this report.						

4 General Information

4.1 General Description of E.U.T.

Product:	Smart Cat Litter Box
Model(s):	FRANK, FRW, REM, REW, REM1, REW1
Model Description:	Only the model names, appearance and control circuit PCB board are different for different market requirement. The models FRANK and FRW use control circuit PCB board B. The models REM, REW, REM1 and REW1 use control circuit PCB board C. The test sample model was REW.
Bluetooth Version:	V5.0
Hardware Version:	Main Board: BC002_Main_V1.2 Extend Board: BC002_Key_V1.1 Weigh Board: BC002_Weight_V1.0 Hall Board: BC002_Hall_V1.0 Pir Board: BC002_Pir_V1.0
Software Version:	V1.1.3

4.2 Details of E.U.T.

Operation Frequency:	2402~2480MHz
Max. RF output power:	8.99dBm
Type of Modulation:	GFSK
Antenna installation:	PCB Antenna
Antenna Gain:	1.95dBi

Note:

#: The antenna gain is provided by the applicant, and the applicant should be responsible for its authenticity, WALTEK lab has not verified the authenticity of its information.

Ratings:	Input: DC 12V by adapter
Adapter:	Model: AS024-1202000U Input: 100-240V~ 50/60Hz 0.8A Output: 12V  2A

4.3 Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (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 Facility

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

ISED CAB identifier: CN0013. Test Firm Registration No.: 7760A.

Waltek Testing Group 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, October 15, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

Waltek Testing Group 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 number 523476, September 10, 2019.

4.5 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test Lab: N/A

Lab address: N/A

Test items: N/A

4.6 Abnormalities from Standard Conditions

None.

4.7 Test Mode

Tests Carried Out Under FCC part 15.247

Test Items	Mode	Data Rate	Channel	TX/RX
Maximum Peak Output Power	BT BLE	1 Mbps	0/19/39	TX
Power Spectral Density	BT BLE	1 Mbps	0/19/39	TX
6dB Bandwidth	BT BLE	1 Mbps	0/19/39	TX
Band Edge	BT BLE	1 Mbps	0/19/39	TX
Transmitter Spurious Emissions	BT BLE	1 Mbps	0/19/39	TX

Note: Parameters set by test software during channel & power tests, the software provided by the customer was used to set the operating channels as well as the output power level. The RF output power set is the power expected by the manufacturer and is going to be fixed on the firmware of the final product.

5 Test Summary

Test Items	Test Requirement	Result
Radiated Spurious Emissions	15.247(d) 15.205(a) 15.209(a)	PASS
Conducted Spurious Emissions	15.247(d)	PASS*
Conducted Emissions	15.207(a)	PASS*
6dB Bandwidth	15.247(a)(2)	PASS*
Maximum Peak Output Power	15.247(b)(3),(4)	PASS*
Power Spectral Density	15.247(e)	PASS*
Band Edge	15.247(d)	PASS*
Antenna Requirement	15.203	PASS*
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	PASS*
*: The test result refer to the report WTF23D08185189W002.		

6 Equipment Used during Test

6.1 Equipments List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date	Calibration Due Date
3m Semi-anechoic Chamber for Radiation Emissions 1#						
1	Spectrum Analyzer	R&S	FSP30	100091	2023-04-24	2024-04-23
2	Amplifier	Agilent	8447D	2944A10178	2023-07-27	2024-07-26
3	Tri-log Broadband Antenna	SCHWARZBECK	VULB9163	336	2023-08-07	2024-08-06
4	Coaxial Cable	Top	TYPE16(13M)	-	2023-04-24	2024-04-23
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120D	667	2024-01-23	2025-01-22
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2023-07-29	2024-07-28
7	Broadband Preamplifier	COMPLIANCE	PAP-1G18	2004	2023-08-08	2024-08-07
8	Coaxial Cable	Top	ZT26-NJ-NJ-8M/FA	-	2024-01-23	2025-01-22
9	Microwave Amplifier	SCHWARZBECK	BBV 9721	100472	2023-07-27	2024-07-26
10	Coaxial Cable	Top	ZT40-2.92J-2.92J-2.0M	17100919	2023-04-24	2024-04-23
3m Semi-anechoic Chamber for Radiation Emissions 2#						
1	Test Receiver	R&S	ESCI	101296	2023-04-24	2024-04-23
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2023-11-04	2024-11-03
3	Active Loop Antenna	Com-Power	AL-130R	10160007	2023-05-07	2024-05-06
4	Amplifier	ANRITSU	MH648A	M43381	2023-04-24	2024-04-23
5	Cable	HUBER+SUHNER	CBL2	525178	2023-04-24	2024-04-23

Test Software:

Test Item	Software name	Software version
Radiated Emission(3m)	EZ-EMC	EZ-EMC(RA-03A1-1)

6.2 Measurement Uncertainty

Parameter	Uncertainty
Conducted Emission	± 3.64 dB(AC mains 150KHz~30MHz)
Radiated Spurious Emissions	± 5.08 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)
Radio Frequency	± 1 x 10 ⁻⁷ Hz
RF Power	± 0.42 dB
RF Power Density	± 0.7dB
Conducted Spurious Emissions	± 2.76 dB (9kHz~26500MHz)
Confidence interval: 95%. Confidence factor:k=2	

7 Radiated Emissions

Test Requirement: FCC 47CFR Part 15 Section 15.209 & 15.247

Test Method: ANSI C63.10:2013

Test Result: PASS

Measurement Distance: 3m

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))} + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

7.1 EUT Operation

Operating Environment:

Temperature: 24.6 °C

Humidity: 50.8 % RH

Atmospheric Pressure: 101.5kPa

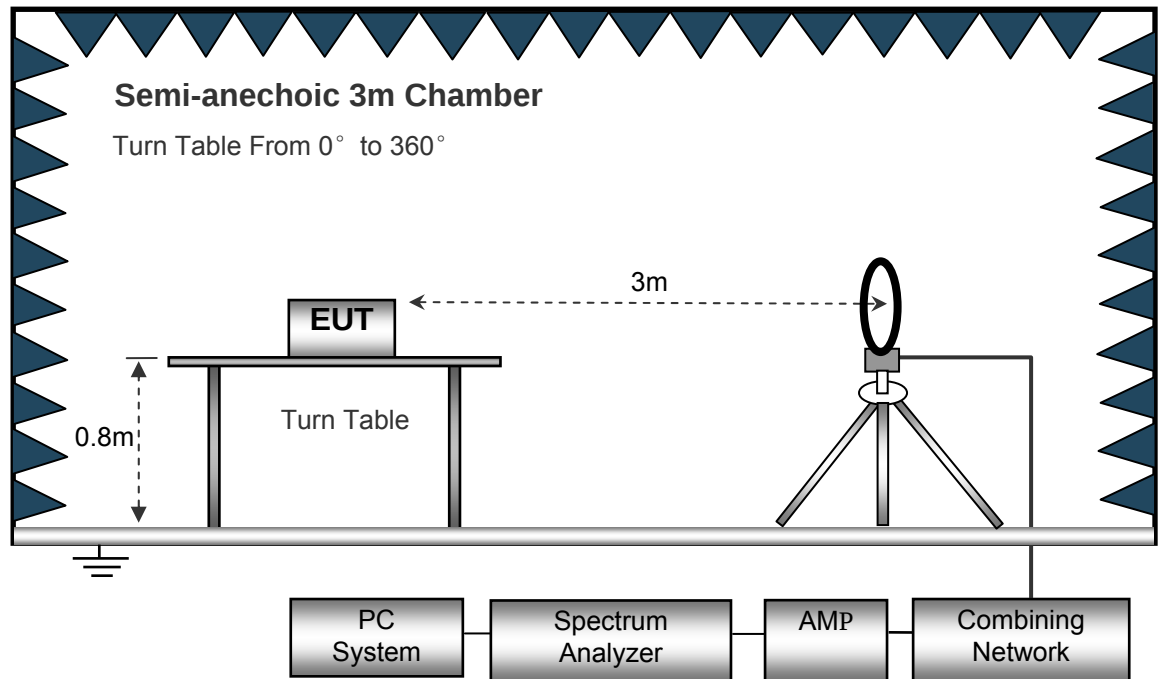
EUT Operation:

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

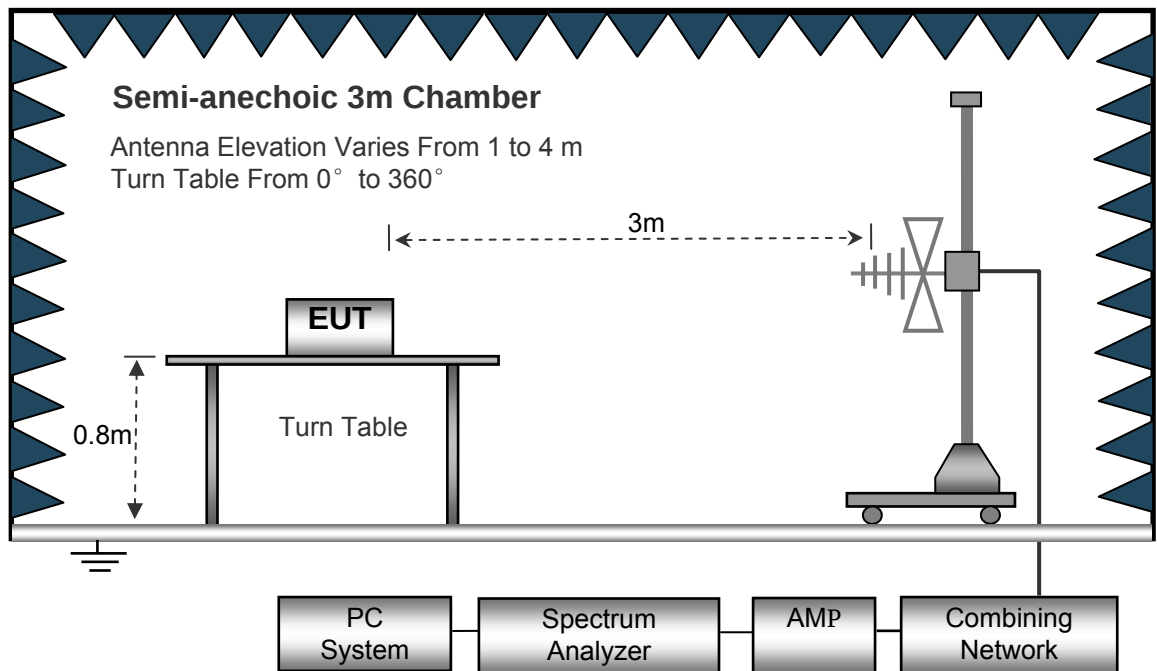
7.2 Test Setup

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

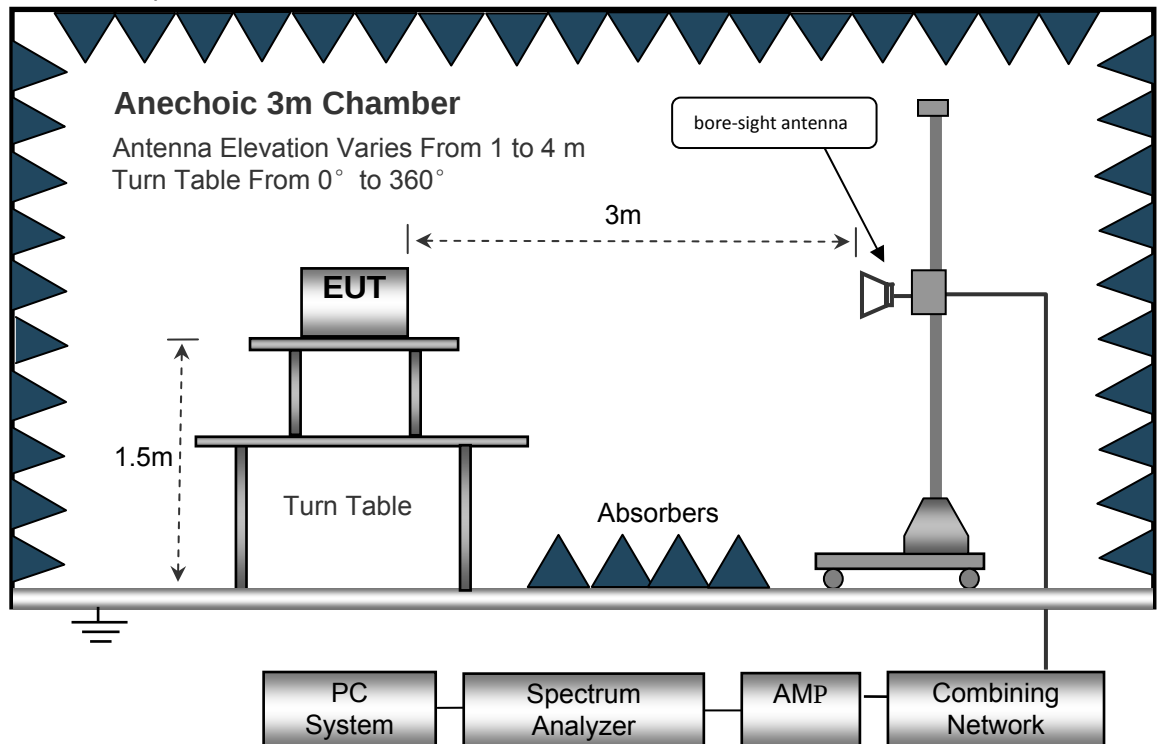
The test setup for emission measurement below 30MHz.



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



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

Below 30MHz

Sweep Speed Auto
 IF Bandwidth..... 10kHz
 Video Bandwidth..... 10kHz
 Resolution Bandwidth..... 10kHz

30MHz ~ 1GHz

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

7.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m for above 1GHz.
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.
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 performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in Z axis,so the worst data were shown as follow.
8. A 2.4GHz high –pass filter is used during radiated emissions above 1GHz measurement.

7.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

7.6 Summary of Test Results

Test Frequency: 9kHz~30MHz

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

Test Frequency: 30MHz ~ 8GHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	Limit	Margin
				Height	Polar				
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
GFSK Low Channel 2402MHz									
278.45	39.71	QP	288	1.9	H	-11.88	27.83	46.00	-18.17
278.45	46.00	QP	295	1.5	V	-11.88	34.12	46.00	-11.88
4804.00	55.10	PK	337	1.1	V	-1.06	54.04	74.00	-19.96
4804.00	38.97	Ave	337	1.1	V	-1.06	37.91	54.00	-16.09
7206.00	57.97	PK	73	1.8	H	1.33	59.30	74.00	-14.70
7206.00	38.94	Ave	73	1.8	H	1.33	40.27	54.00	-13.73
2311.26	45.99	PK	332	1.8	V	-13.19	32.80	74.00	-41.20
2311.26	39.41	Ave	332	1.8	V	-13.19	26.22	54.00	-27.78
2384.70	43.68	PK	259	1.9	H	-13.14	30.54	74.00	-43.46
2384.70	37.45	Ave	259	1.9	H	-13.14	24.31	54.00	-29.69
2494.30	42.02	PK	91	1.0	V	-13.08	28.94	74.00	-45.06
2494.30	36.22	Ave	91	1.0	V	-13.08	23.14	54.00	-30.86

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	Limit	Margin
				Height	Polar				
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
GFSK Middle Channel 2440MHz									
278.45	38.78	QP	282	1.5	H	-13.35	25.43	46.00	-20.57
278.45	46.38	QP	212	1.5	V	-13.35	33.03	46.00	-12.97
4880.00	53.90	PK	22	1.0	V	-0.62	53.28	74.00	-20.72
4880.00	40.03	Ave	22	1.0	V	-0.62	39.41	54.00	-14.59
7320.00	56.67	PK	32	1.2	H	2.21	58.88	74.00	-15.12
7320.00	39.30	Ave	32	1.2	H	2.21	41.51	54.00	-12.49
2344.55	45.03	PK	150	1.1	V	-13.19	31.84	74.00	-42.16
2344.55	39.32	Ave	150	1.1	V	-13.19	26.13	54.00	-27.87
2362.40	42.52	PK	327	1.6	H	-13.14	29.38	74.00	-44.62
2362.40	36.26	Ave	327	1.6	H	-13.14	23.12	54.00	-30.88
2493.98	44.49	PK	106	1.0	V	-13.08	31.41	74.00	-42.59
2493.98	37.60	Ave	106	1.0	V	-13.08	24.52	54.00	-29.48

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	Limit	Margin
				Height	Polar				
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
GFSK High Channel 2480MHz									
278.45	40.10	QP	229	1.5	H	-13.35	26.75	46.00	-19.25
278.45	48.07	QP	139	1.2	V	-13.35	34.72	46.00	-11.28
4960.00	56.95	PK	338	2.0	V	-0.24	56.71	74.00	-17.29
4960.00	40.46	Ave	338	2.0	V	-0.24	40.22	54.00	-13.78
7440.00	57.51	PK	323	1.8	H	2.84	60.35	74.00	-13.65
7440.00	38.96	Ave	323	1.8	H	2.84	41.80	54.00	-12.20
2329.72	45.62	PK	263	1.5	V	-13.19	32.43	74.00	-41.57
2329.72	38.36	Ave	263	1.5	V	-13.19	25.17	54.00	-28.83
2375.32	42.10	PK	101	1.2	H	-13.14	28.96	74.00	-45.04
2375.32	38.98	Ave	101	1.2	H	-13.14	25.84	54.00	-28.16
2487.63	43.72	PK	302	1.8	V	-13.08	30.64	74.00	-43.36
2487.63	37.04	Ave	302	1.8	V	-13.08	23.96	54.00	-30.04

Test Frequency: 8GHz~25GHz

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

8 Photographs of test setup and EUT.

Note: Please refer to appendix: Appendix-REW-Photos.

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