

Test Report

Report No.: MTi241202011-01E1

Date of issue: 2024-12-05

Applicant: Joint Chinese Ltd

Product: Charging Case

Model(s): X2C-13, X2C-06, X2C-07, X2C-08, X2C-09, X2C-10
X2C-11, X2C-12, X2A-06, X2A-07, X2A-08, X2A-09
X2A-10, X2A-11, X2A-12, X2A-13, X2C, X2A, X2A-06
X2A-07, X2A-08, X2A-09, X2A-10, X2A-11, X2A-12, X2A-13

FCC ID: 2AB73-X2C

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.cn>

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Test Result Certification	
Applicant:	Joint Chinese Ltd
Address:	Building 4 & 6, Huafeng Tech Park, Guangtian Road, Luotian Industrial Area, Songgang Town, Bao' an District, Shenzhen, China
Manufacturer:	Joint Chinese Ltd
Address:	Building 4 & 6, Huafeng Tech Park, Guangtian Road, Luotian Industrial Area, Songgang Town, Bao' an District, Shenzhen, China
Product description	
Product name:	Charging Case
Trademark:	N/A
Model name:	X2C-13
Series Model(s):	X2C-06, X2C-07, X2C-08, X2C-09, X2C-10, X2C-11, X2C-12, X2A-06, X2A-07, X2A-08, X2A-09, X2A-10, X2A-11, X2A-12, X2A-13, X2C, X2A, X2A-06, X2A-07, X2A-08, X2A-09, X2A-10, X2A-11, X2A-12, X2A-13
Standards:	47 CFR Part 18
Test Standards:	FCC/OST MP-5 (1986).
Date of Test	
Date of test:	2024-12-03 to 2024-12-05
Test result:	Pass

Test Engineer	:	<i>James Qin</i>
		(James Qin)
Reviewed By	:	<i>David. Lee</i>
		(David Lee)
Approved By	:	<i>Leon Chen</i>
		(Leon Chen)

1 General Description

1.1 Description of the EUT

Product name:	Charging Case
Model name:	X2C-13
Series Model(s):	X2C-06, X2C-07, X2C-08, X2C-09, X2C-10, X2C-11, X2C-12, X2A-06, X2A-07, X2A-08, X2A-09, X2A-10, X2A-11, X2A-12, X2A-13, X2C, X2A, X2A-06, X2A-07, X2A-08, X2A-09, X2A-10, X2A-11, X2A-12, X2A-13
Model difference:	All the models are the same circuit and module, except the model name.
Electrical rating:	Input: DC 5V Wireless Output: 160mA Battery: DC 3.7V, 200mAh
Accessories:	Cable: USB-A to USB-C Cable 30cm
Hardware version:	2330-MB10-V1
Software version:	X2AV0
Test sample(s) number:	MTi241202011-01S1001
RF specification:	
Operation frequency:	289kHz
Modulation type:	Load modulation
Antenna type:	Coil Antenna

1.2 Description of test modes

For test, the EUT has been pre-tested under the following test modes, Only the worst case data will be shown in the report.

No.	Emission test modes
Mode1	Charging+Wireless Charging
Mode1	Stand by

1.3 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15°C ~ 35°C
Humidity:	20% RH ~ 75% RH
Atmospheric pressure:	98 kPa ~ 101 kPa

1.4 Description of support units

Support equipment list			
Description	Model	Serial No.	Manufacturer
HUAWEI CHARGE	HW-050200C02	K95212KA103561	HUAWEI
Support cable list			
Description	Length (m)	From	To
/	/	/	/

1.5 Measurement uncertainty

Measurement	Uncertainty
Conducted emissions (AMN 150kHz~30MHz)	±3.1dB
Radiated emissions (9kHz~30MHz)	±4.3dB
Temperature	±1 °C
Humidity	± 5 %

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

2 Summary of Test Result

No.	Item	Standard	Requirement	Result
1	Conducted Emissions on AC Power Line	47 CFR Part 18	18.307	Pass
2	Radiated Emissions (9kHz-30MHz)	47 CFR Part 18	18.305	Pass

3 Test Facilities and accreditations

3.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No.7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573
IC Registration No.:	21760
CABID:	CN0093

4 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
Conducted Emissions on AC Power Line						
1	EMI Test Receiver	Rohde&schwarz	ESCI3	101368	2024-03-20	2025-03-19
2	Artificial mains network	Schwarzbeck	NSLK 8127	183	2024-03-21	2025-03-20
3	Artificial Mains Network	Rohde & Schwarz	ESH2-Z5	100263	2024-03-20	2025-03-19
Radiated Emissions (9kHz-30MHz)						
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2024-03-20	2025-03-19
2	Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00066	2024-03-23	2025-03-22
3	Amplifier	Hewlett-Packard	8447F	3113A06184	2024-03-20	2025-03-19

5 Emission Test Results (EMI)

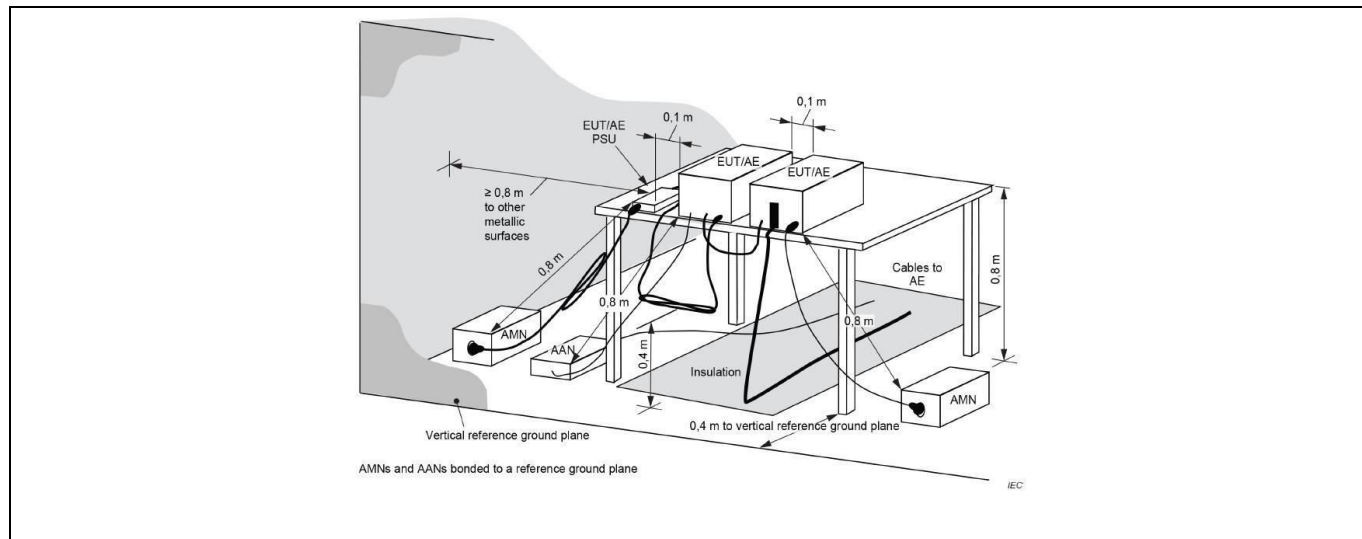
5.1 Conducted Emissions on AC Power Line

Test Requirement:	18.307
Test Method:	MP-5 Clause 7
Procedure:	<p>An initial pre-scan was performed with peak detector.Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.</p> <p>Remark: Level= Read Level+ Cable Loss+ LISN Factor</p>

5.1.1 E.U.T. Operation:

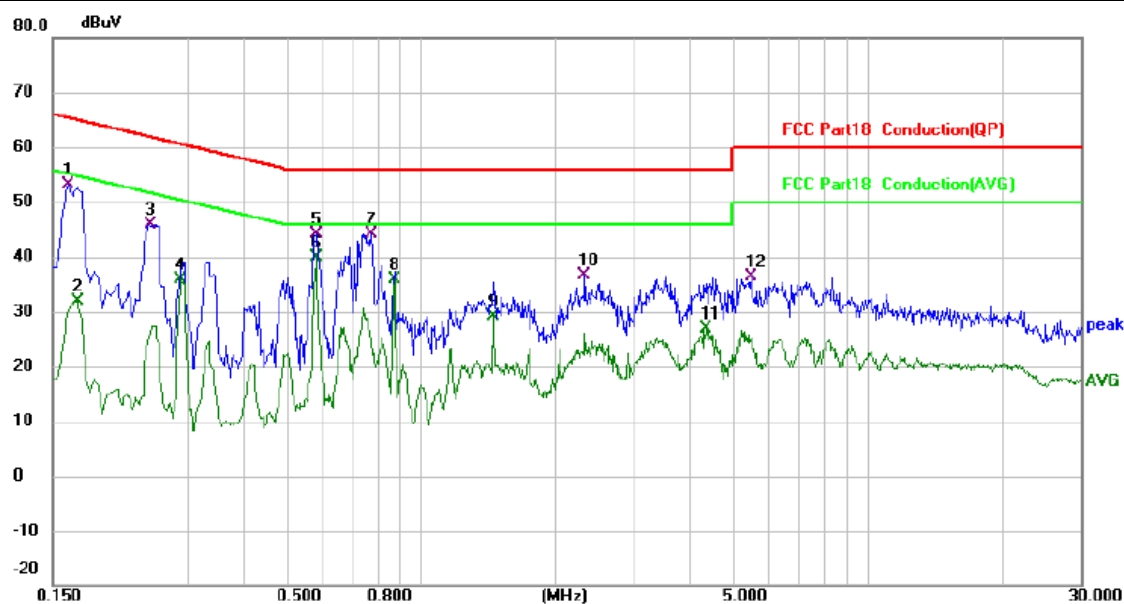
Operating Environment:					
Temperature:	25 °C	Humidity:	57 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1, Mode2				
Final test mode:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode1) is recorded in the report				

5.1.2 Test Setup Diagram:



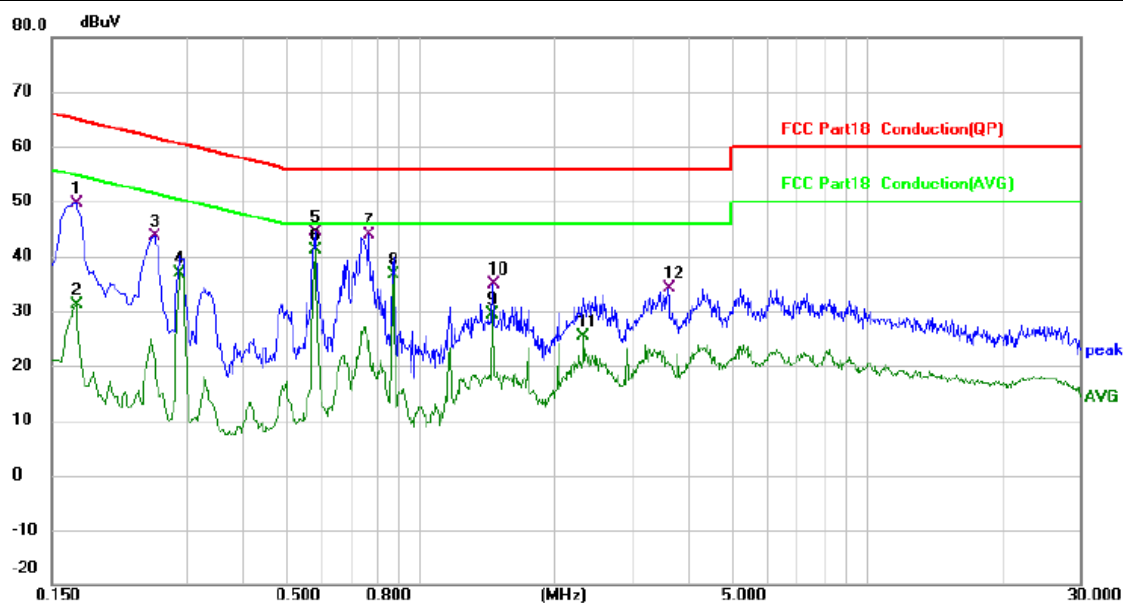
5.1.3 Test Data:

Mode1 / Line: Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1620	42.88	10.30	53.18	65.36	-12.18	QP	
2		0.1700	21.69	10.30	31.99	54.96	-22.97	AVG	
3		0.2460	35.58	10.32	45.90	61.89	-15.99	QP	
4		0.2900	25.45	10.35	35.80	50.52	-14.72	AVG	
5		0.5820	33.70	10.45	44.15	56.00	-11.85	QP	
6	*	0.5820	29.50	10.45	39.95	46.00	-6.05	AVG	
7		0.7780	33.66	10.49	44.15	56.00	-11.85	QP	
8		0.8740	25.26	10.51	35.77	46.00	-10.23	AVG	
9		1.4540	18.65	10.54	29.19	46.00	-16.81	AVG	
10		2.3300	25.96	10.55	36.51	56.00	-19.49	QP	
11		4.3459	16.25	10.57	26.82	46.00	-19.18	AVG	
12		5.4818	25.83	10.59	36.42	60.00	-23.58	QP	

Mode1 / Line: Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1700	39.40	10.30	49.70	64.96	-15.26	QP	
2		0.1700	20.92	10.30	31.22	54.96	-23.74	AVG	
3		0.2540	33.33	10.33	43.66	61.63	-17.97	QP	
4		0.2900	26.41	10.35	36.76	50.52	-13.76	AVG	
5		0.5820	33.96	10.45	44.41	56.00	-11.59	QP	
6	*	0.5820	30.59	10.45	41.04	46.00	-4.96	AVG	
7		0.7700	33.50	10.49	43.99	56.00	-12.01	QP	
8		0.8740	26.16	10.51	36.67	46.00	-9.33	AVG	
9		1.4540	18.94	10.54	29.48	46.00	-16.52	AVG	
10		1.4580	24.23	10.54	34.77	56.00	-21.23	QP	
11		2.3300	14.87	10.55	25.42	46.00	-20.58	AVG	
12		3.6020	23.59	10.56	34.15	56.00	-21.85	QP	

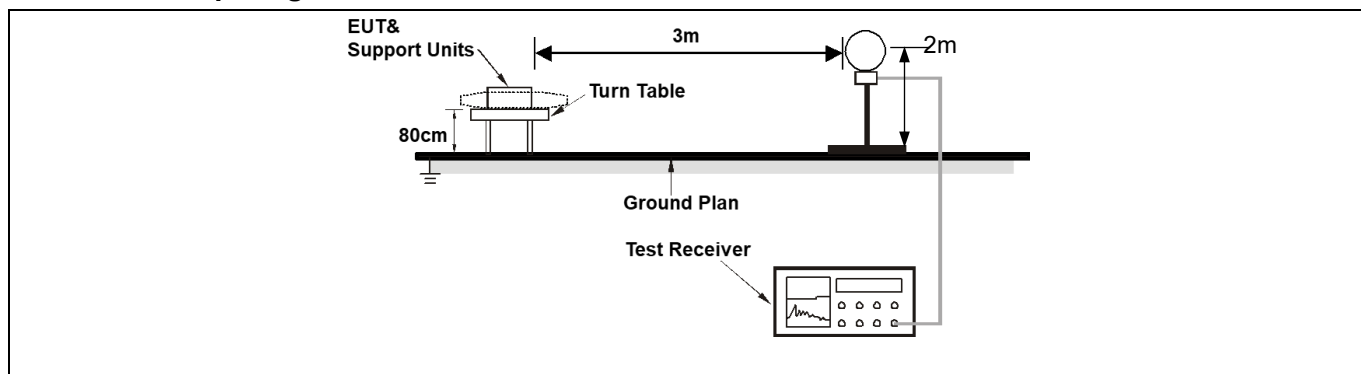
5.2 Radiated Emissions (9kHz-30MHz)

Test Requirement:	18.305				
Test Limit:	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)	
	Any ISM frequency	Below 500	25	300	
		500 or more	$25 \times \text{SQRT}(\text{power}/500)$	300 (1)	
	Any non-ISM frequency	Below 500	15	300	
		500 or more	$15 \times \text{SQRT}(\text{power}/500)$	300 (1)	
	On or below 5,725 MHz	Any	10	1,600	
	Above 5,725 MHz	Any	(2)	(2)	
	Any ISM frequency	Any	25	300	
	Any non-ISM frequency	Any	15	300	
	Below 490 kHz	Below 500	$2,400/F(\text{kHz})$	300	
		500 or more	$2,400/F(\text{kHz}) \times \text{SQRT}(\text{power}/500)$	300 (3)	
	490 to 1,600 kHz	Any	$24,000/F(\text{kHz})$	30	
	Above 1,600 kHz	Any	15	30	
	Below 90 kHz	Any	1,500	30 (4)	
	On or above 90 kHz	Any	300	30 (4)	
	(1) Field strength may not exceed 10 $\mu\text{V}/\text{m}$ at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts. (2) Reduced to the greatest extent possible. (3) Field strength may not exceed 10 $\mu\text{V}/\text{m}$ at 1600 meters. Consumer equipment is not permitted the increase in field strength otherwise permitted here for over 500 watts. (4) Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.				
Test Method:	MP-5 Clause 5/6				
Procedure:	Frequency range: 9KHz-30MHz For a loop antenna. The antenna height shall be set at around 2 meters. An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by loop antenna with 2 orthogonal polarities. The red line show in graphic is the limit in standard used in this section. Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor				

5.2.1 E.U.T. Operation:

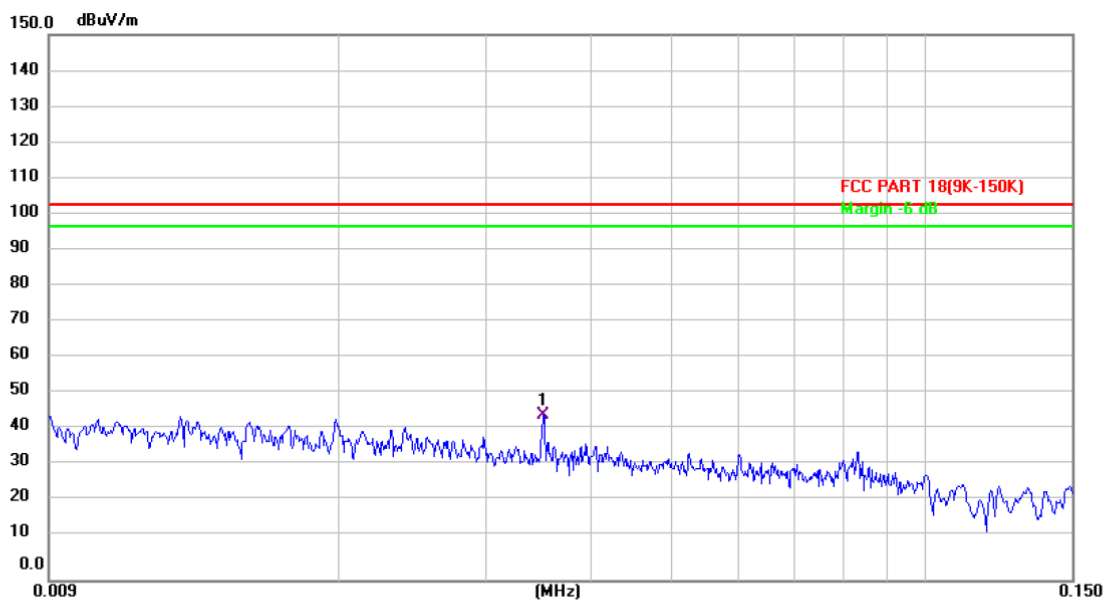
Operating Environment:					
Temperature:	25 °C	Humidity:	55 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1, Mode2				
Final test mode:	All of the listed pre-test mode were tested, only the data of the worst mode (Mode1) is recorded in the report				

5.2.1 Test Setup Diagram:



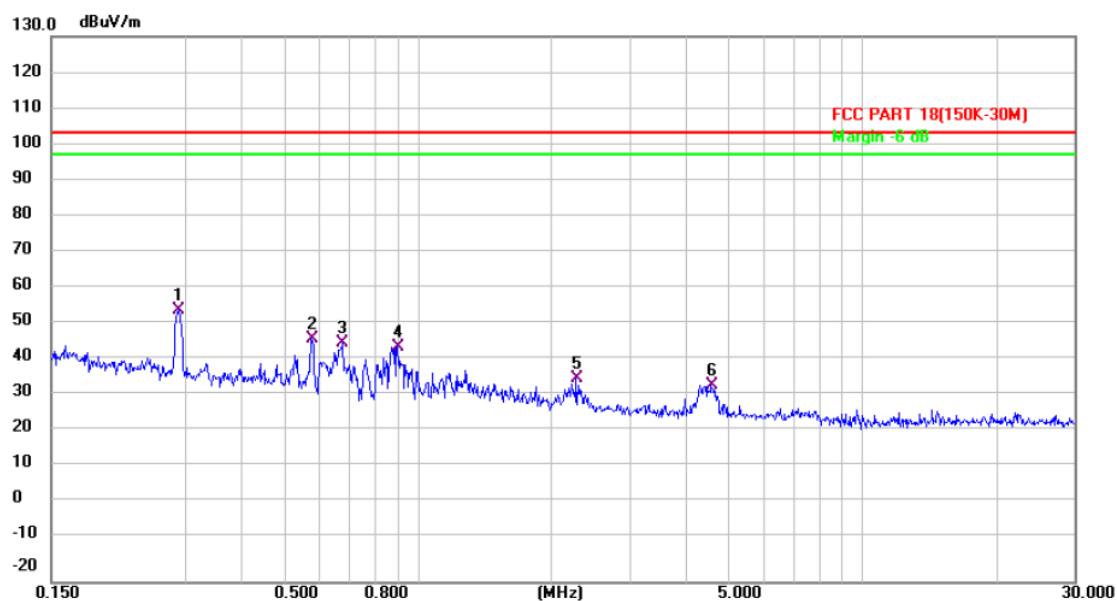
5.2.2 Test Data:

Mode1 / Polarization: coaxial



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0350	24.59	20.95	45.54	103.50	-57.96	QP	

Mode1 / Polarization: coaxial



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.2893	33.97	20.92	54.89	103.50	-48.61	QP	
2		0.5762	25.19	21.59	46.78	103.50	-56.72	QP	
3		0.6790	23.93	21.83	45.76	103.50	-57.74	QP	
4		0.8992	22.39	22.36	44.75	103.50	-58.75	QP	
5		2.2726	10.97	25.21	36.18	103.50	-67.32	QP	
6		4.5736	13.48	20.88	34.36	103.50	-69.14	QP	

Photographs of the test setup

Refer to Appendix - Test Setup Photos .

Photographs of the EUT

Refer to Appendix - EUT Photos

----End of Report----