



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3) Date : 06 Jan 2016

Application No. : LT037763(4)

Applicant : Capital Prospect Ltd
RM03 13/F., Block B, Veristrong Ind. Bldg.,
34-36 Au Pui Wan Street, Fo Tan,
N.T., Hong Kong

Sample Description : One(1) item of submitted sample stated to be:

Sample Description	Model No.
Lighting Remote Control	MD-318

Radio Frequency : 318MHz Receiver

Rating : AC 120 V

No. of submitted sample : One (1) piece

Sample registration No. : RT041218-001

Date Received : 12 Aug 2015.

Test Period : 23 Nov 2015 to 06 Jan 2016.

Test Requested : FCC 47CFR Part 15 – Class II Permissive Change.


Test Method : 47 CFR Part 15 (10-1-15 Edition)
ANSI C63.4 – 2014

Test Result : See attached sheet(s) from page 2 to 17.

Conclusion : The submitted sample was found to comply with requirement of FCC 47CFR Part 15 Subpart B.

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____


Mr. WONG Lap-pong, Andrew
Manager
Electrical Division

Page 1 of 17

FCC ID: KUTMD318



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

Table of Contents

1	General Information	3
1.1	General Description	3
1.2	Location of the test site	4
1.3	List of measuring equipment.....	5
1.4	Measurement Uncertainty.....	5
2	Description of the radiated emission test	6
2.1	Test Procedure	6
2.2	Test Setup	7
2.3	Test Result	9
2.4	Radiated Emission Measurement Data	10
3	Description of the Line-conducted Test.....	11
3.1	Test Procedure	11
3.2	Test Result	11
3.3	Test Setup	11
3.4	Graph and Table of Conducted Emission Measurement Data	11
4	Compliance Information	12
4.1	FCC Compliance Statement.....	12
5	Appendices.....	13



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

1 General Information

1.1 General Description

The equipment under test (EUT) is a 318MHz receiver with the oscillation of radio control is generated by 9.893534MHz crystal. The EUT acts as a remote control to receive the signal from the transmitters and it can communicate with up to 8 transmitters so users has the option to add more transmitters to the system. It allows users to wirelessly turn on /off, dim, and brighten the light fixtures with up to 300W rating. The EUT is powered by 120Vac.

The antenna terminal is permanently attached in EUT.

The brief circuit description is listed as follows:

For main board:

-U6, X1	and its associated circuit act as MCU and crystal
-U3, Q1, T1, D2-D3, D8	and its associated circuit act as load control
-U4, U5	and its associated circuit act as voltage regulator
-TR1, Q5, Q7-Q8, D6, D11	and its associated circuit act as step down voltage convertor
-Q2, D1, D4-D5	and its associated circuit act as zero detector
-D17	and its associated circuit act as rectifier
-Q4	and its associated circuit act as power control
-Q3, B1, D7	and its associated circuit act as Buzzer

For receiver board:

-U1, Y1	and its associated circuit act as RX modular
---------	--



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

1.2 Location of the test site

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009. A Semi-Anechoic Chamber Testing Site is set up for investigation and located at:

Ground Floor, Yan Hing Centre,
9 – 13 Wong Chuk Yeung Street,
Fo Tan, Shatin,
New Territories,
Hong Kong.

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2009. A shielded room is located at :

Ground Floor, Yan Hing Centre,
9 – 13 Wong Chuk Yeung Street,
Fo Tan, Shatin,
New Territories,
Hong Kong.

FCC Registration Number: 552221



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

1.3 List of measuring equipment

Equipment	Manufacturer	Model No.	Serial No.	Calibration Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100152	28 Sep 2016
Spectrum Analyze	Rohde & Schwarz	FSV 40	100964	03 Feb 2016
Broadband Antenna	Schaffner	CBL6112B	2718	20 Feb 2016
Artificial Main Network	Rohde & Schwarz	ENV216	101232	22 Oct 2016
Coaxial Cable	Schaffner	RG213/U	N/A	18 May 2016
Coaxial Cable	Suhner	RG214/U	N/A	18 May 2016

Supporting equipment:

300W light bulbs (supplied by CMA)

1.4 Measurement Uncertainty

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%.

Radiated emissions

Frequency	Uncertainty (U_{lab})
30MHz ~ 200MHz (Horizontal)	4.66dB
30MHz ~ 200MHz (Vertical)	4.67dB
200MHz ~1000MHz (Horizontal)	4.68dB
200MHz ~1000MHz (Vertical)	4.67dB

Conducted emissions

Frequency	Uncertainty (U_{lab})
150kHz ~ 30MHz	2.63dB



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

2 Description of the radiated emission test

2.1 Test Procedure

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2014.

A non-conductive turntable with dimensions of 1.5m x 0.4m x 0.8m (L x W x H) placed above the reference ground plane. The equipment under test (EUT) was placed at 0.8m height for below 1GHz measurement. The test distance is 3m between EUT and receiving antenna. A broadband antenna mounting on the mast received the signal strength. The turntable was rotated to maximize the emission level. The antenna was moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

The device was rotated through three orthogonal axes to determine which attitude and configuration produce the highest emission during measurement.



CMA Testing and Certification Laboratories

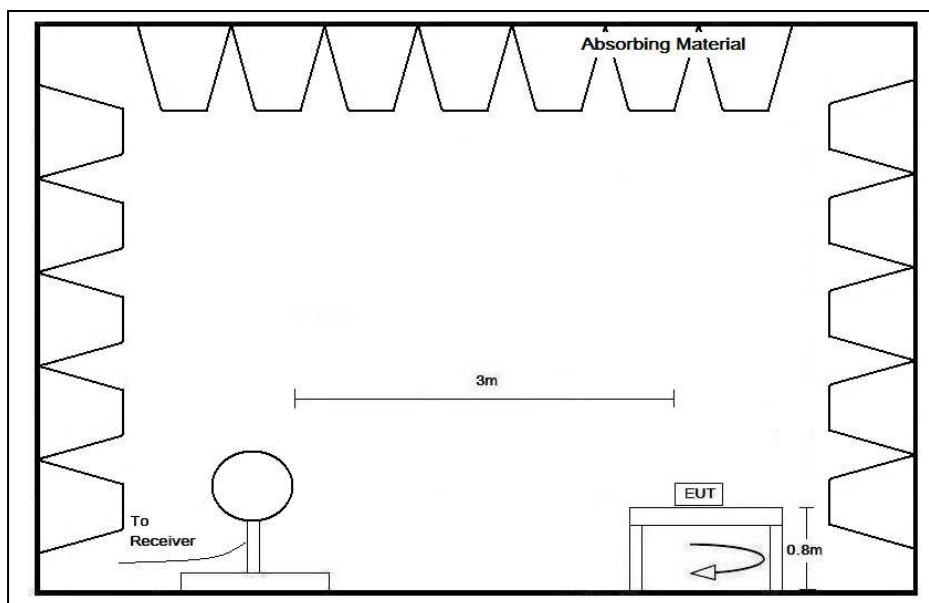
廠商會檢定中心

TEST REPORT

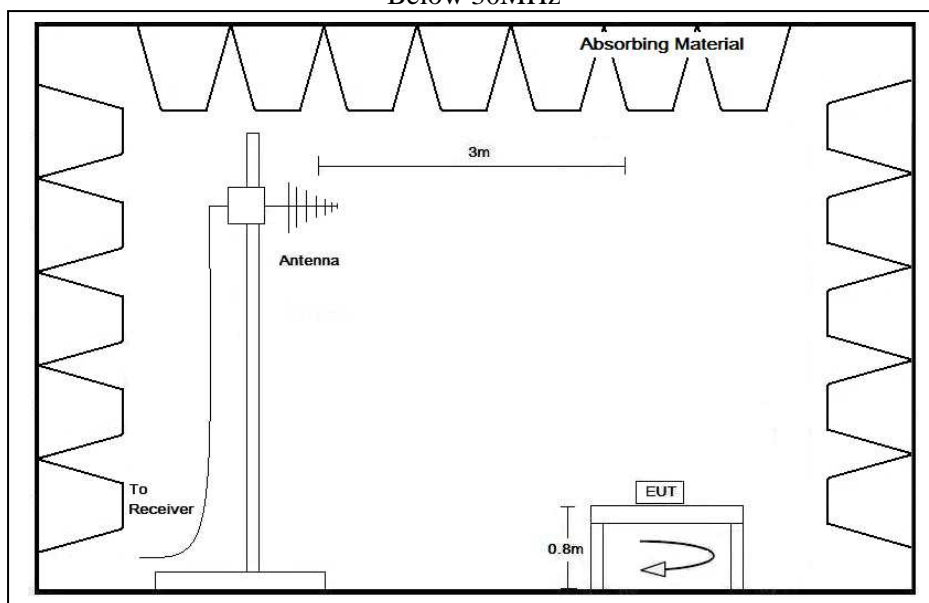
Report No. : AU0003308 (3)

Date : 06 Jan 2016

2.2 Test Setup



Below 30MHz



30MHz – 1GHz



CMA Testing and Certification Laboratories

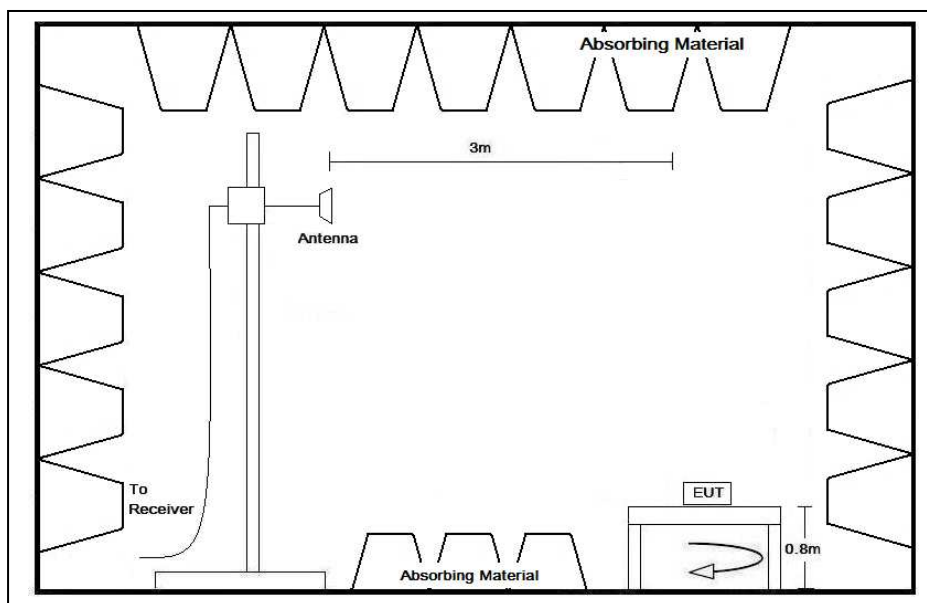
廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

2.2 Test Setup



Above 1GHz



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

2.3 Test Result

The emissions meeting the requirement of FCC Part 15.109 are based on measurements employing the CISPR quasi-peak detector below 1000MHz and average detector for frequencies above 1000MHz.

The EUT has been tested in receiving mode with 300W load.

It was found that the EUT met the FCC requirement.



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

2.4 Radiated Emission Measurement Data

Radiated emission

Environmental conditions:

Parameter	Recorded value	
Ambient temperature:	23	° C
Relative humidity:	63	%

Mode: Receiving

RBW: 9kHz for frequency below 30MHz

120 kHz for frequency 30M-1GHz

1 MHz for frequency above 1GHz

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)	Detector Type
124.806	H	8.9	14.2	23.1	43.5	-20.4	QP
187.915	H	9.4	11.6	21.0	43.5	-22.5	QP
267.993	H	9.4	15.5	24.9	46.0	-21.1	QP
360.618	H	11.7	16.7	28.4	46.0	-17.6	QP
426.667	H	9.2	21.6	30.8	46.0	-15.2	QP
478.549	H	10.3	21.6	31.9	46.0	-14.1	QP
552.904	H	9.2	23.1	32.3	46.0	-13.7	QP

Remark: Other emissions more than 20dB below the limit are not reported.



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

3 Description of the Line-conducted Test

3.1 Test Procedure

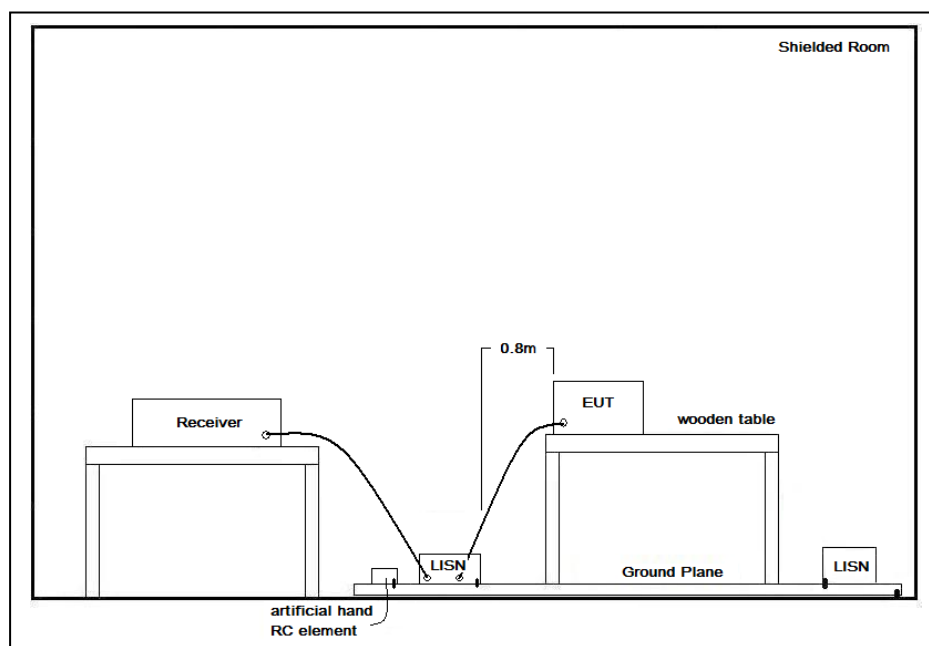
Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2014. The EUT was setup as described in the procedures, and both lines were measured.

3.2 Test Result

The EUT has been tested in receiving mode with 300W load.

It was found that the EUT met the FCC requirement.

3.3 Test Setup



3.4 Graph and Table of Conducted Emission Measurement Data

The test data and graphs had shown in Appendices A1.



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

4 Compliance Information

4.1 FCC Compliance Statement

The statement is shown in the user manual which states that:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

5 Appendices

The following document shall be submitted by applicant, and filing in Technical Construction File.

A1 Line conducted measurement data 1 page

The appendix A1 was shown in next page.



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

A1 Line conducted measurement data

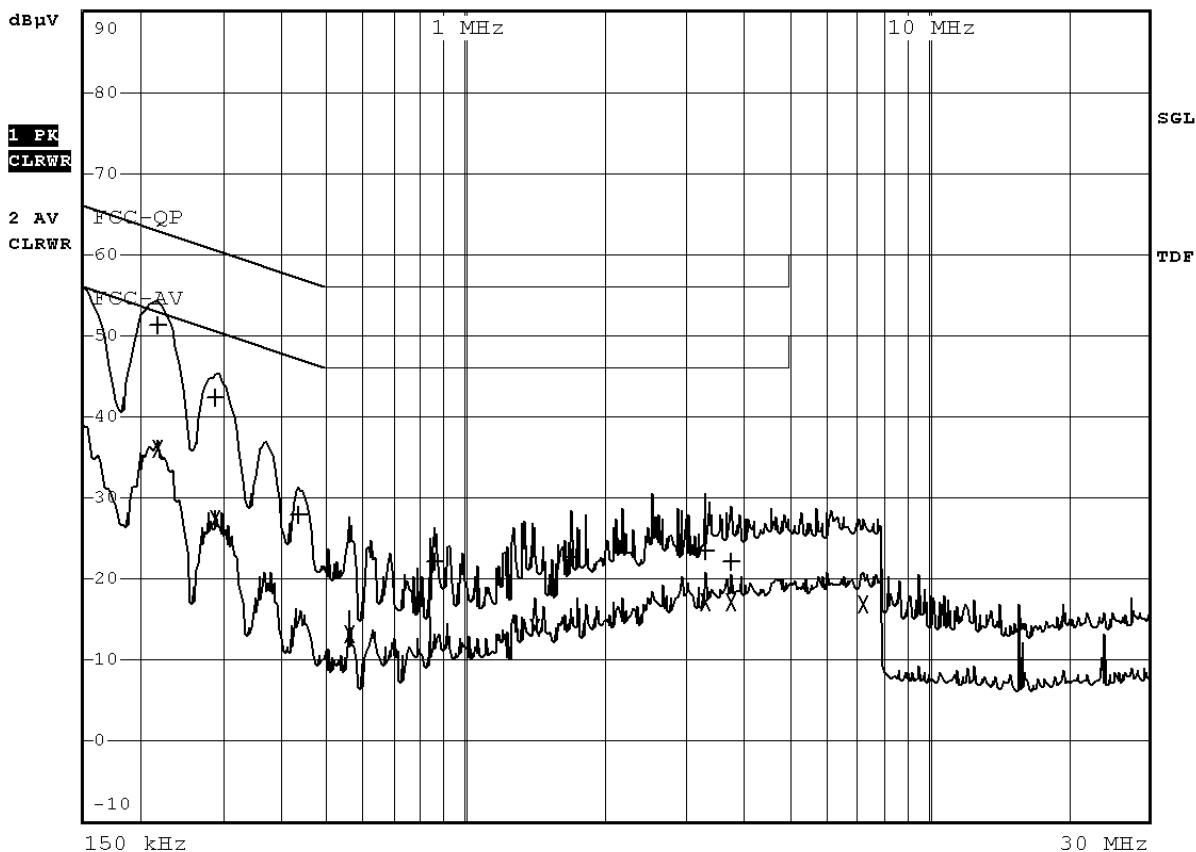
Parameter	Recorded value
Ambient temperature:	23 °C
Relative humidity:	60 %
Terminal:	AC Mains
Line:	Live
Mode:	receiving mode with 300W load



RBW 9 kHz

MT 1 s

Att 10 dB AUTO PREAMP OFF





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

A1 Line conducted measurement data

Parameter	Recorded value
Ambient temperature:	23 °C
Relative humidity:	60 %

Terminal:	AC Mains
Line:	Live
Mode:	receiving mode with 300W load

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC-QP			
Trace2:	FCC-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
1 Quasi Peak	217.5 kHz	51.17 L1 gnd	-11.73	
2 Average	217.5 kHz	36.10 L1 gnd	-16.80	
1 Quasi Peak	289.5 kHz	42.32 L1 gnd	-18.21	
2 Average	289.5 kHz	27.51 L1 gnd	-23.02	
1 Quasi Peak	438 kHz	27.86 L1 gnd	-29.23	
2 Average	558.5 kHz	13.15 L1 gnd	-32.85	
1 Quasi Peak	855.5 kHz	22.12 L1 gnd	-33.87	
2 Average	1.4135 MHz	13.90 L1 gnd	-32.09	
1 Quasi Peak	1.688 MHz	22.67 L1 gnd	-33.32	
1 Quasi Peak	3.29 MHz	23.56 L1 gnd	-32.44	
2 Average	3.29 MHz	17.08 L1 gnd	-28.91	
1 Quasi Peak	3.7355 MHz	22.15 L1 gnd	-33.84	
2 Average	3.767 MHz	17.06 L1 gnd	-28.94	
2 Average	7.241 MHz	17.02 L1 gnd	-32.97	



CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

A1 Line conducted measurement data

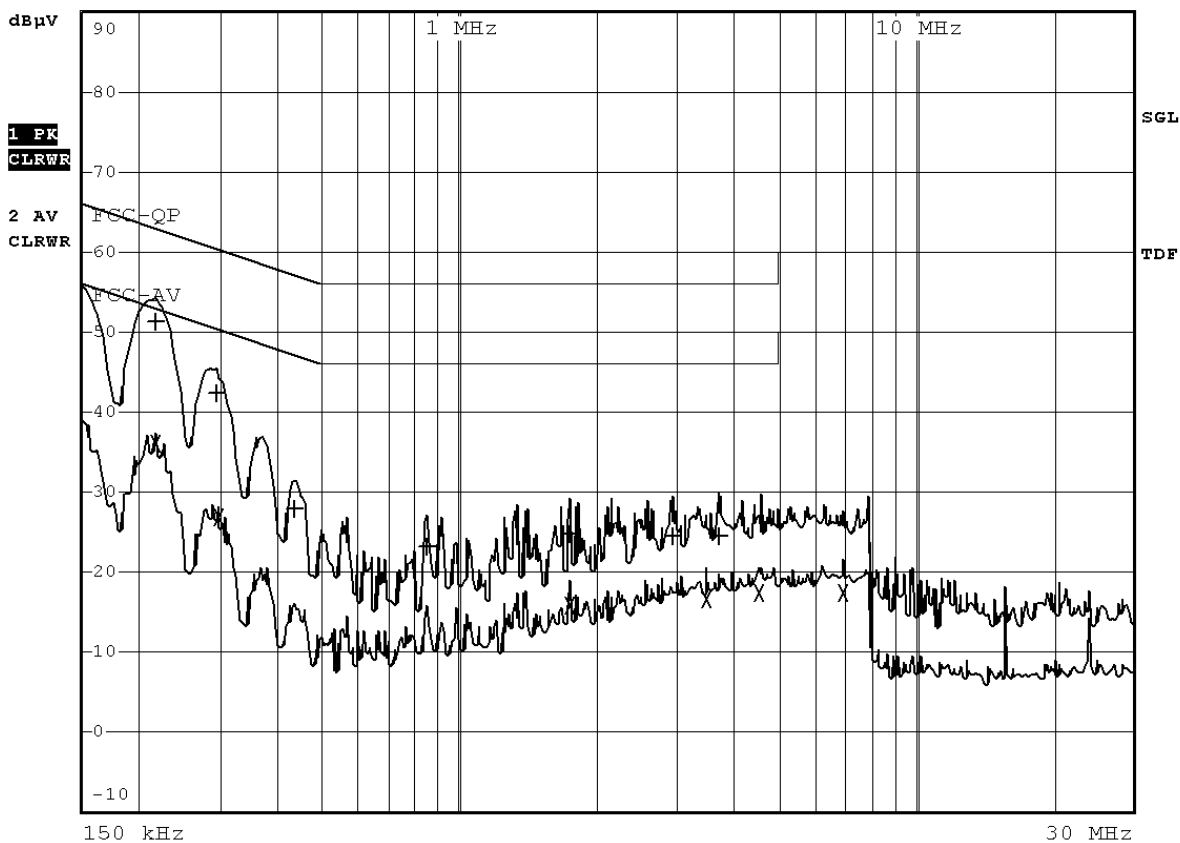
Parameter	Recorded value
Ambient temperature:	23 °C
Relative humidity:	60 %
Terminal:	AC Mains
Line:	Neutral
Mode:	receiving mode with 300W load



RBW 9 kHz

MT 1 s

Att 10 dB AUTO PREAMP OFF





CMA Testing and Certification Laboratories

廠商會檢定中心

TEST REPORT

Report No. : AU0003308 (3)

Date : 06 Jan 2016

A1 Line conducted measurement data

Parameter	Recorded value
Ambient temperature:	23 °C
Relative humidity:	60 %

Terminal:	AC Mains
Line:	Neutral
Mode:	receiving mode with 300W load

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC-QP			
Trace2:	FCC-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
1 Quasi Peak	217.5 kHz	51.18 N gnd	-11.73	
2 Average	217.5 kHz	35.95 N gnd	-16.95	
1 Quasi Peak	294 kHz	42.28 N gnd	-18.12	
2 Average	298.5 kHz	27.00 N gnd	-23.28	
1 Quasi Peak	438 kHz	27.94 N gnd	-29.16	
1 Quasi Peak	846.5 kHz	23.23 N gnd	-32.76	
1 Quasi Peak	1.742 MHz	24.78 N gnd	-31.21	
2 Average	1.742 MHz	15.82 N gnd	-30.17	
1 Quasi Peak	2.9435 MHz	24.44 N gnd	-31.55	
2 Average	3.488 MHz	16.52 N gnd	-29.47	
1 Quasi Peak	3.6995 MHz	24.54 N gnd	-31.45	
2 Average	4.5275 MHz	17.53 N gnd	-28.46	
2 Average	6.9665 MHz	17.32 N gnd	-32.67	

***** End of Report *****