



TEST REPORT No.: (5210)176-0192

TEST REPORT

To:	ADVANCED CONTROL TECHNOLOGIES, INC.	To:	-
Attn:	Kevin Shelow	Attn:	-
Address:	6805 Hillsdale Ct. Indianapolis, IN. 46250, USA	Address:	-
Fax:	--	Fax:	-
E-mail:	kschelow@act-solutions.com	E-mail:	-
Folder No.:	MEW-10JU314LTHS-B		

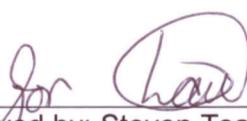
Factory name:	MEGA WORLD HOLDINGS LTD.
Location:	Unit J, 13/F., World Tech Centre, 95 How Ming Street, Kwun Tong, Kowloon, Hong Kong
Product:	Dimmer Wall Mount MODEL: LRM-AS-S

(Please see Exhibit: External Photo)	Sample No:	HK100621/064
	Test date:	June 26, 2010 To June 30, 2010
	Test Requested:	FCC Part 15 - 2008
	Test Method:	ANSI C63.4 - 2003
	FCC ID:	QIE0797-01

The results given in this report are related to the tested specimen of the described electrical apparatus.

CONCLUSION: The submitted sample was found to COMPLY with requirement of FCC Part 15 Subpart C.

Authorized Signature:

	
Reviewed by: Keith Yeung Date: July 19, 2010	Approved by: Steven Tsang Date: July 19, 2010

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Location of the test laboratory

Radiated and Conducted emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003. An Open Area Test Site and Full Anechoic Chamber (FCC Listed Site, Registration No. 642151) are set up for investigation and located at :

BUREAU VERITAS HONG KONG LIMITED, EMC CENTRE

No. 2106-2107, 21/F., Westin Centre,
26 Hung To Road,
Kwun Tong, Kowloon,
Hong Kong

List of measuring equipment

Radiated Emission

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCI	100379	24-AUG-2010
BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	30-MAY-2011
OPEN AREA TEST SITE	BVCPS	N/A	N/A	06-JULY-2011
ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	08-JULY-2011
COAXIAL CABLE	SUHNER	N/A	N/A	26-OCT-2010

Conducted Emission

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCS30	830986/030	26-SEP-2010
LISN	R&S	ENV216	100024	09-MAR-2011

Remarks:-

N/A : Not Applicable or Not Available

The measurement instrumentation uncertainty would be taking into consideration on each of the test result



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Equipment Under Test [EUT]

Description of Sample:

Model Name: Dimmer Wall Mount
Model Number: LRM-AS-S
Additional Model Number: LRM-ASA, LRM-ASI, LRM-ASW, LRM-ASX
Additional Model information: Declare the Circuit, PCB layout, Electrical parts and Outlook of the products are identical to the basic model. Expect the outlook colour.
Rating: 117Va.c., 60Hz

Description of EUT Operation:

The Equipment Under Test (EUT) is an ADVANCED CONTROL TECHNOLOGIES, INC. Remote Control Transceiver. It is a three-wire Z-wave mesh network enabled wall switch with TRIAC phase control output and a three-way auxiliary control switch input, and it is operating at 908.39MHz. Modulation by IC, and type is FSK modulation.

The transmitter has different control:

1. On/off button – on/off control

Antenna Requirement (Section 15.203)

The EUT is use of a permanently antenna. The antenna consists of 7cm long wire. The antenna is not replaceable or user serviceable. The requirements of S15.203 are met. There are no deviations or exceptions to the specifications.



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Test Results

Conducted Emissions (150kHz to 30MHz)

Test Requirement: FCC Part 15 Section 15.207
Test Method: ANSI C63.4
Test Limits: Class B

Test Date(s): 2010-06-28
Temperature: 25.0 °C
Humidity: 66.0 %
Atmospheric Pressure: 100.6 kPa

Mode of Operation: Transmission and Receiver mode
Tested Voltage 117V a.c., 60Hz

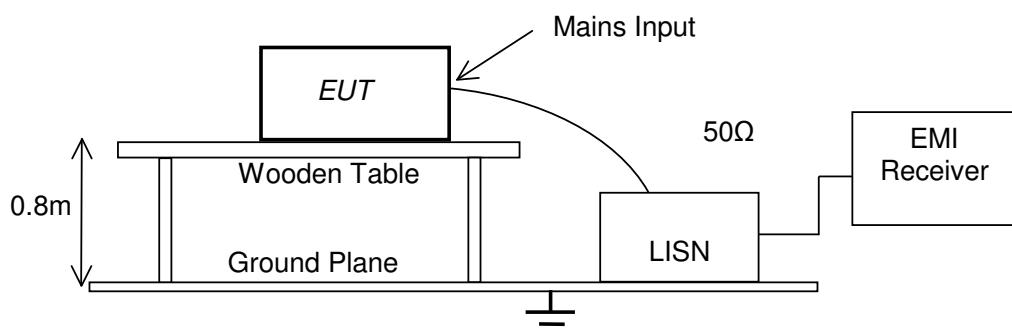
Test Method:

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2003. The EUT was setup as described in the procedures, and both lines were measured.

Initial measurements were performed in peak and average detection modes on the live line, any emissions recorded within 30dB of the relevant limit lines were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Location: Shielding Room, No. 603, 6/F., Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

Test Setup:



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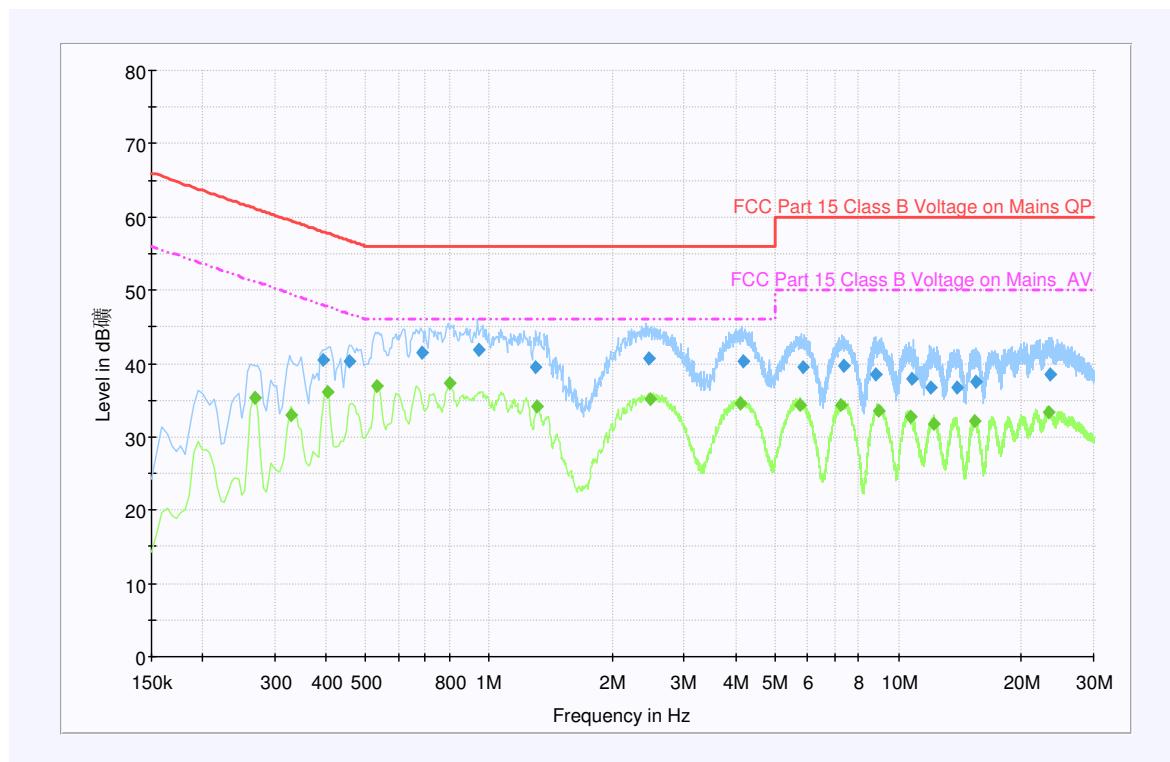
TEST REPORT No.: (5210)176-0192

Measurement Data: Live

Test Result of (Transmission mode): PASS

Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.





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Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following tables.

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dB μ V)
0.393000	40.4	9.000	L1	17.6	58.0
0.456000	40.2	9.000	L1	16.6	56.8
0.685500	41.5	9.000	L1	14.5	56.0
0.946500	41.9	9.000	L1	14.1	56.0
1.297500	39.6	9.000	L1	16.4	56.0
2.467500	40.8	9.000	L1	15.2	56.0
4.177500	40.3	9.000	L1	15.7	56.0
5.829000	39.5	9.000	L1	20.5	60.0
7.345500	39.6	9.000	L1	20.4	60.0
8.772000	38.5	9.000	L1	21.5	60.0
10.806000	37.9	9.000	L1	22.1	60.0
11.958000	36.8	9.000	L1	23.2	60.0
13.951500	36.6	9.000	L1	23.4	60.0
15.468000	37.4	9.000	L1	22.6	60.0
23.496000	38.6	9.000	L1	21.4	60.0

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dB μ V)
0.267000	35.3	9.000	L1	15.9	51.2
0.330000	33.0	9.000	L1	16.5	49.5
0.402000	36.1	9.000	L1	11.7	47.8
0.532500	36.9	9.000	L1	9.2	46.0
0.802500	37.2	9.000	L1	8.8	46.0
1.311000	34.1	9.000	L1	11.9	46.0
2.476500	35.2	9.000	L1	10.8	46.0
4.119000	34.5	9.000	L1	11.5	46.0
5.743500	34.3	9.000	L1	15.7	50.0
7.260000	34.3	9.000	L1	15.7	50.0
8.943000	33.5	9.000	L1	16.5	50.0
10.671000	32.7	9.000	L1	17.3	50.0
12.178500	31.7	9.000	L1	18.3	50.0
15.333000	32.1	9.000	L1	17.9	50.0
23.280000	33.3	9.000	L1	16.7	50.0

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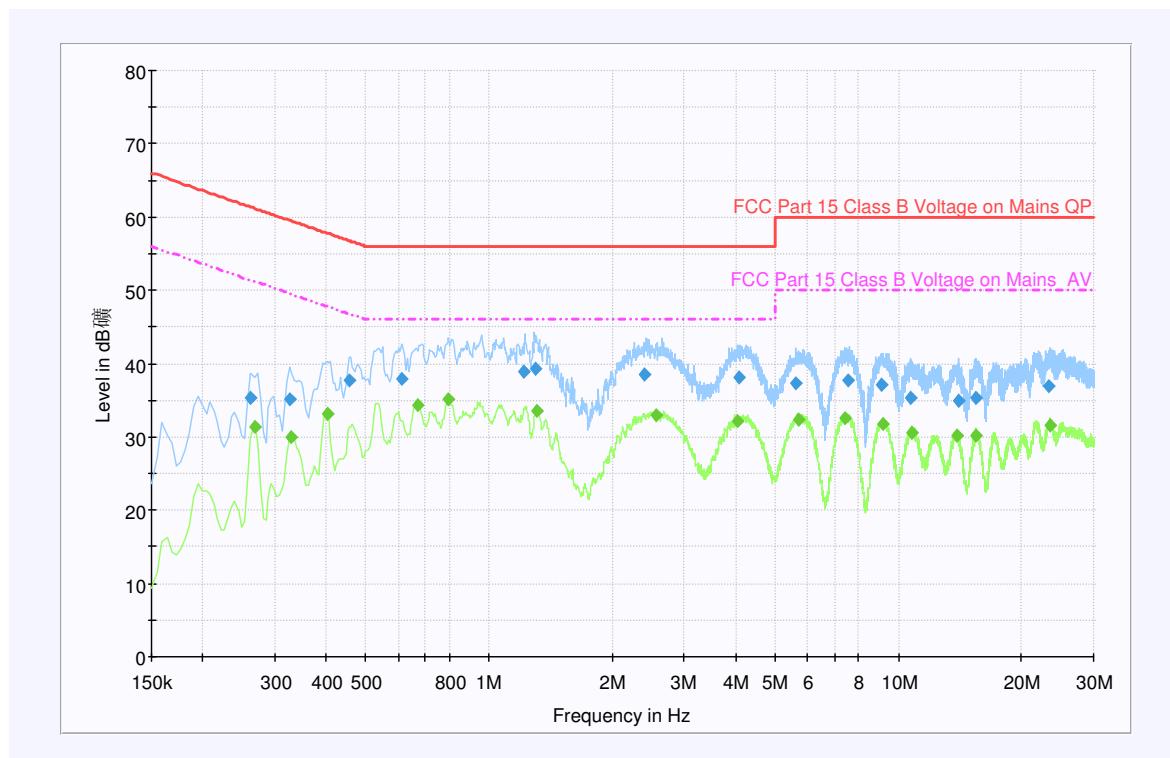
TEST REPORT No.: (5210)176-0192

Measurement Data: Neutral

Test Result of (Transmission mode): PASS

Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.



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Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following tables.

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dB μ V)
0.262500	35.4	9.000	N	26.0	61.4
0.325500	35.1	9.000	N	24.5	59.6
0.456000	37.6	9.000	N	19.2	56.8
0.613500	37.8	9.000	N	18.2	56.0
1.216500	38.9	9.000	N	17.1	56.0
1.297500	39.3	9.000	N	16.8	56.0
2.400000	38.4	9.000	N	17.6	56.0
4.074000	38.1	9.000	N	17.9	56.0
5.595000	37.3	9.000	N	22.8	60.0
7.561500	37.7	9.000	N	22.3	60.0
9.073500	37.0	9.000	N	23.0	60.0
10.711500	35.4	9.000	N	24.6	60.0
14.050500	35.0	9.000	N	25.0	60.0
15.508500	35.4	9.000	N	24.6	60.0
23.352000	37.0	9.000	N	23.0	60.0

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dB μ V)
0.267000	31.4	9.000	N	19.8	51.2
0.330000	30.0	9.000	N	19.5	49.5
0.402000	33.1	9.000	N	14.7	47.8
0.667500	34.3	9.000	N	11.7	46.0
0.798000	35.2	9.000	N	10.8	46.0
1.311000	33.5	9.000	N	12.5	46.0
2.557500	33.0	9.000	N	13.0	46.0
4.033500	32.1	9.000	N	13.9	46.0
5.703000	32.3	9.000	N	17.7	50.0
7.422000	32.5	9.000	N	17.5	50.0
9.172500	31.7	9.000	N	18.3	50.0
10.797000	30.7	9.000	N	19.3	50.0
13.924500	30.2	9.000	N	19.8	50.0
15.463500	30.2	9.000	N	19.8	50.0
23.388000	31.6	9.000	N	18.4	50.0

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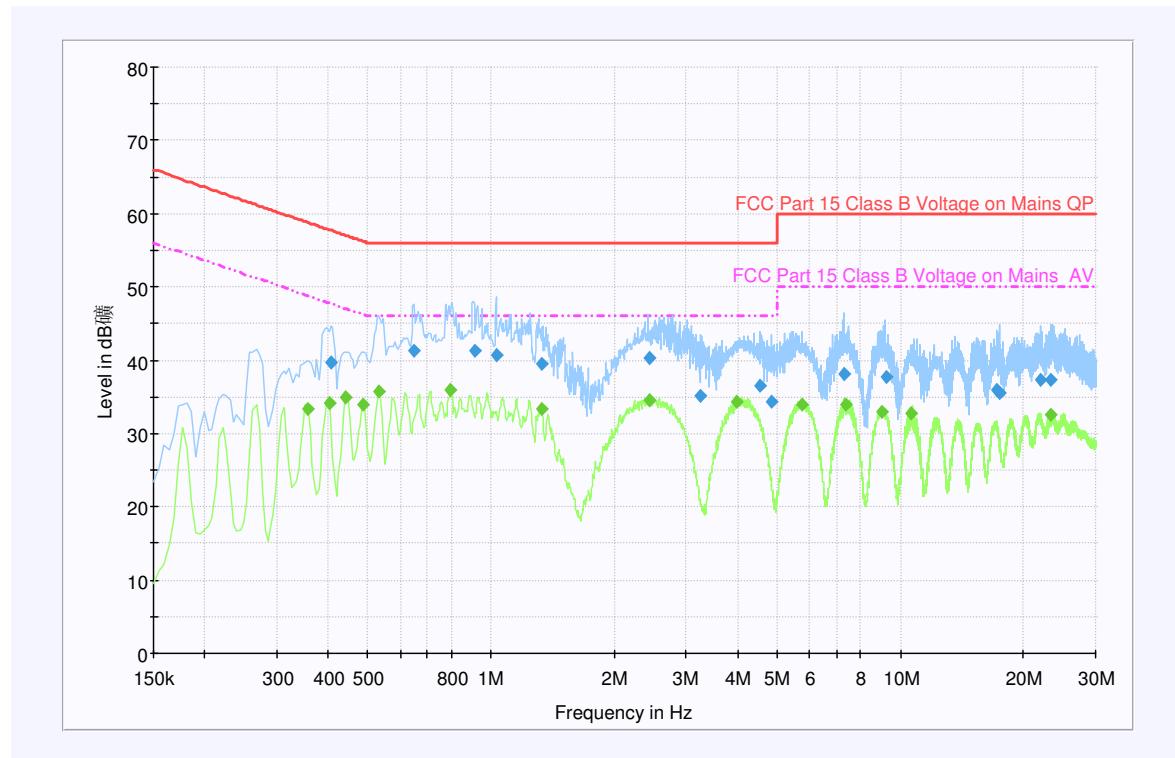


TEST REPORT No.: (5210)176-0192
Measurement Data: Live

Test Result of (Receiver mode): PASS

Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.



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Results and limit lines for Conducted Emission:

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Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dB μ V)
0.406500	39.7	9.000	L1	18.0	57.7
0.649500	41.3	9.000	L1	14.7	56.0
0.910500	41.3	9.000	L1	14.7	56.0
1.036500	40.7	9.000	L1	15.3	56.0
1.333500	39.5	9.000	L1	16.5	56.0
2.436000	40.3	9.000	L1	15.7	56.0
3.241500	35.1	9.000	L1	20.9	56.0
4.555500	36.5	9.000	L1	19.5	56.0
4.830000	34.3	9.000	L1	21.7	56.0
7.282500	38.1	9.000	L1	21.9	60.0
9.217500	37.7	9.000	L1	22.3	60.0
17.245500	35.9	9.000	L1	24.1	60.0
17.479500	35.6	9.000	L1	24.4	60.0
21.934500	37.4	9.000	L1	22.6	60.0
23.239500	37.4	9.000	L1	22.6	60.0

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dB μ V)
0.357000	33.4	9.000	L1	15.4	48.8
0.402000	34.2	9.000	L1	13.6	47.8
0.442500	34.9	9.000	L1	12.1	47.0
0.487500	34.0	9.000	L1	12.2	46.2
0.532500	35.8	9.000	L1	10.2	46.0
0.798000	35.8	9.000	L1	10.2	46.0
1.329000	33.3	9.000	L1	12.7	46.0
2.445000	34.6	9.000	L1	11.4	46.0
3.988500	34.3	9.000	L1	11.7	46.0
5.761500	33.9	9.000	L1	16.1	50.0
7.354500	34.0	9.000	L1	16.0	50.0
9.046500	32.9	9.000	L1	17.1	50.0
10.644000	32.8	9.000	L1	17.2	50.0
23.356500	32.5	9.000	L1	17.5	50.0

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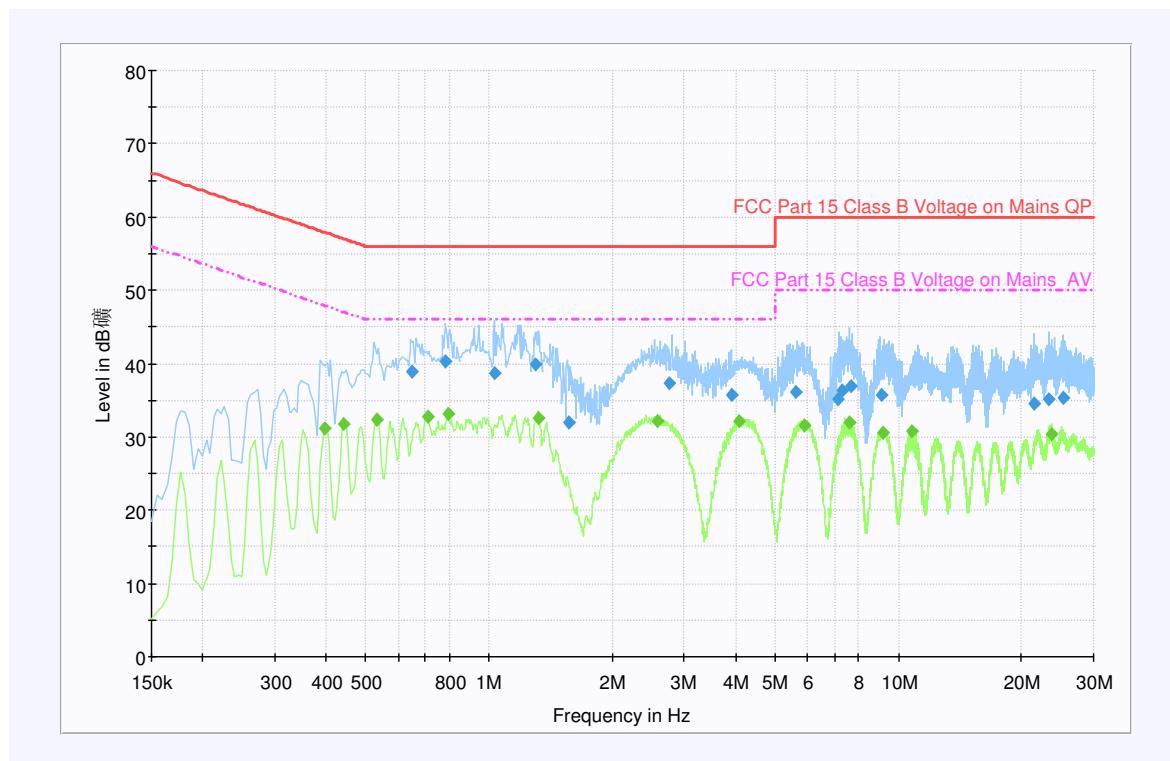
TEST REPORT No.: (5210)176-0192

Measurement Data: Neutral

Test Result of (Receiver mode): PASS

Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.



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Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dB μ V)
0.649500	38.9	9.000	N	17.1	56.0
0.780000	40.3	9.000	N	15.7	56.0
1.032000	38.7	9.000	N	17.3	56.0
1.302000	40.0	9.000	N	16.0	56.0
1.563000	31.9	9.000	N	24.1	56.0
2.751000	37.3	9.000	N	18.7	56.0
3.916500	35.7	9.000	N	20.3	56.0
5.626500	36.1	9.000	N	23.9	60.0
7.143000	35.1	9.000	N	24.9	60.0
7.269000	36.2	9.000	N	23.8	60.0
7.629000	36.9	9.000	N	23.1	60.0
9.069000	35.7	9.000	N	24.4	60.0
21.493500	34.6	9.000	N	25.4	60.0
23.307000	35.2	9.000	N	24.8	60.0
25.165500	35.4	9.000	N	24.6	60.0

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dB μ V)
0.397500	31.2	9.000	N	16.7	47.9
0.442500	31.7	9.000	N	15.3	47.0
0.532500	32.4	9.000	N	13.6	46.0
0.708000	32.8	9.000	N	13.2	46.0
0.793500	33.2	9.000	N	12.8	46.0
1.315500	32.6	9.000	N	13.4	46.0
2.584500	32.2	9.000	N	13.8	46.0
4.074000	32.1	9.000	N	13.9	46.0
5.919000	31.6	9.000	N	18.4	50.0
7.579500	32.0	9.000	N	18.0	50.0
9.177000	30.6	9.000	N	19.4	50.0
10.779000	30.8	9.000	N	19.2	50.0
23.662500	30.3	9.000	N	19.7	50.0

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TEST REPORT No.: (5210)176-0192

Radiated Emissions (Fundamental)

Test Requirement: FCC Part 15 Section 15.249
Test Method: ANSI C63.4
Test Date(s): 2010-06-30
Temperature: 27.0 °C
Humidity: 68.0 %
Atmospheric Pressure: 100.6 kPa
Mode of Operation: Transmission mode
Tested Voltage: 117V a.c., 60Hz

Test Procedure:

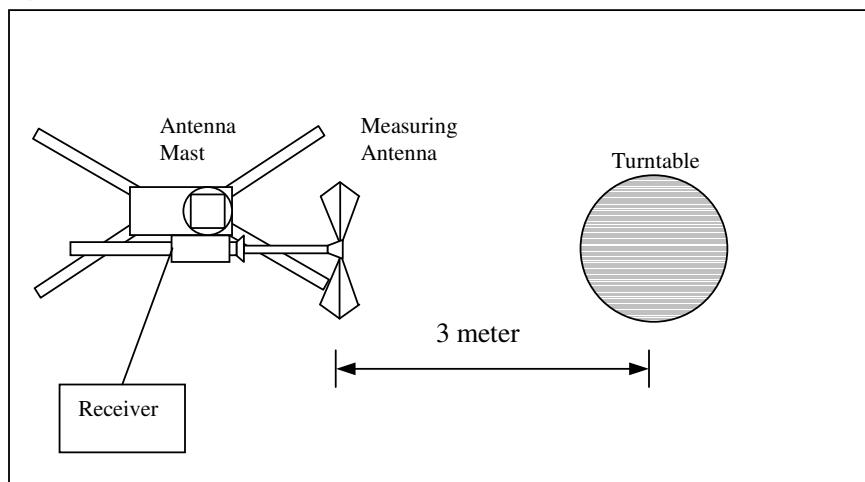
Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 1m and 0.8m high above the ground. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. 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 performed using new battery. The turntable was rotated to maximize the emission level. The antenna was then moved 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.

For below 30MHz, a loop antenna with its vertical plane is placed 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 1m above the ground.

Location: The Roof, Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

Test Setup: Open Area Test Site



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TEST REPORT No.: (5210)176-0192

Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission (Quasi-Peak) [mV/m]	Field Strength of Harmonics Emission (Average) [μV/m]
902-928	50	500

Measurement Data

Test Result of (Transmission mode): PASS

Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V) and degree	EUT Orientation	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
908.39	H	Front side	23.6	83.7	94.0	-10.3

Frequency (MHz)	Polarity (H/V) and degree	EUT Orientation	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
908.39	V	Front side	23.6	80.8	94.0	-13.2

Note: EUT Orientation is shown as Set up photo.
Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 100KHz
VBW = 300KHz

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TEST REPORT No.: (5210)176-0192

Radiated Emissions (Spurious Emission)

Test Requirement: FCC Part 15 Section 15.249
Test Method: ANSI C63.4
Test Date(s): 2010-06-30
Temperature: 27.0 °C
Humidity: 68.0 %
Atmospheric Pressure: 100.6 kPa
Mode of Operation: Transmission mode
Tested Voltage 117V a.c., 60Hz

Measurement Data

Test Result of (Transmission mode): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
1816.78	H	-5.8	39.5	74.0	-34.5
2725.17	H	-3.1	41.0	74.0	-33.0
3633.56	H	-1.0	40.4	74.0	-33.6
4541.95	H	1.7	42.2	74.0	-31.8
5450.34	H	4.2	42.8	74.0	-31.2
6358.73	H	6.8	47.1	74.0	-26.9
7267.12	H	10.0	50.7	74.0	-23.3
8175.51	H	11.2	52.4	74.0	-21.6
9083.90	H	12.4	53.9	74.0	-20.1
9992.29	H	11.9	51.0	74.0	-23.0

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz

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TEST REPORT No.: (5210)176-0192

Measurement Data

Test Result of (Transmission mode): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
1816.78	V	-5.8	40.2	74.0	-33.8
2725.17	V	-3.1	39.1	74.0	-34.9
3633.56	V	-1.0	40.7	74.0	-33.3
4541.95	V	1.7	41.3	74.0	-32.7
5450.34	V	4.2	42.0	74.0	-32.0
6358.73	V	6.8	45.6	74.0	-28.4
7267.12	V	10.0	50.8	74.0	-23.2
8175.51	V	11.2	52.4	74.0	-21.6
9083.90	V	12.4	53.6	74.0	-20.4
9992.29	V	11.9	52.7	74.0	-21.3

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz
VBW = 1MHz

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TEST REPORT No.: (5210)176-0192

Radiated Emissions (30MHz – 5GHz)

Test Requirement: FCC Part 15 Section 15.209
Test Method: ANSI C63.4
Test Date(s): 2010-06-30
Temperature: 27.0 °C
Humidity: 68.0 %
Atmospheric Pressure: 100.6 kPa
Mode of Operation: Transmission mode and Receiver mode
Tested Voltage 117V a.c., 60Hz

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
1.705-30	300
30-88	100
88-216	150
216-960	200
Above 960	500

Measurement Data

Test Result of (Transmission mode): PASS

Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m ($\text{dB}\mu\text{V}/\text{m}$)	Limit at 3m ($\text{dB}\mu\text{V}/\text{m}$)	Margin (dB)
Emissions detected are more than 20dB below the limit line(s).				

Note: Field Strength includes Antenna Factor and Cable Loss.

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TEST REPORT No.: (5210)176-0192
Measurement Data

Test Result of (Receiver mode): PASS

Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
40.52	V	38.5	40.0	-1.5
122.92	H	23.9	43.5	-19.6
212.40	V	23.7	43.5	-19.8
222.64	H	23.6	46.0	-22.4
381.32	H	27.5	46.0	-18.5
408.16	V	29.2	46.0	-16.8

Note: Field Strength includes Antenna Factor and Cable Loss.

During the test shall be used to radiate an unmodulated CW signal to a superregenerative receiver at its operating frequency in order to "cohere" or to resolve the individual components of the characteristic broadband emissions from such a receiver. The level of the signal may need to be increased for this to occur

Receiver setting (30-1000MHz) :RBW = 100KHz
:VBW = 300KHz

Receiver setting (1-18GHz): :RBW = 1MHz
:VBW = 1MHz

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TEST REPORT No.: (5210)176-0192

Frequency range of Fundamental Emission

Test Requirement: FCC 47 CFR 15.249
Test Method: ANSI C63.4:2003 (Section 13.1.7)
Test Date(s): 2010-06-26
Temperature: 25.0 °C
Humidity: 66.0 %
Atmospheric Pressure: 100.6 kPa
Mode of Operation: Transmission mode
Tested Voltage 117V a.c., 60Hz

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Limits for Frequency range of Fundamental Emission:

Frequency [MHz]	FCC Limits [MHz]
908.390	902-928

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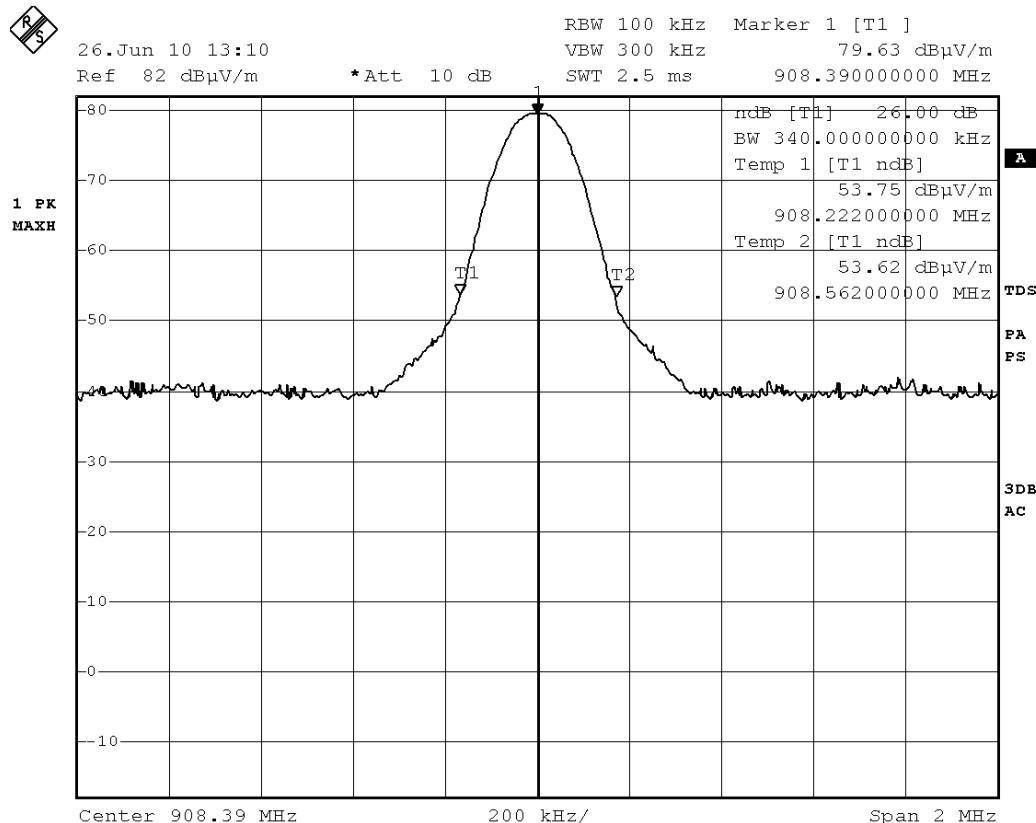
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TEST REPORT No.: (5210)176-0192

Measurement Data :

Test Result of Frequency Range of Fundamental Emission: PASS



Date: 26.JUN.2010 13:10:56

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

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