TEST REPORT

Report No.	:	AV0035180(6)	Date :	20 Jun 2017
Application No.	:	LV019826(4)		
Applicant	:	Kid Galaxy Inc. 150 Dow Street, Unit 425B Manchester, NH03101, U.S.A		
Sample Description	:	One(1) item of submitted sample stated to be Car of ProSeries Rock Climber of Model No. 10315 Sample registration no. : RV0023513-001 Radio Frequency : 2413MHz – 2473MHz Transceiver Rating : 9.6V rechargeable battery No. of submitted sample : Four (4) piece (s)		
Date Received	:	12 Jun 2017		
Test Period	:	13 Jun 2017 to 20 Jun 2017		
Test Requested	:	FCC Part 15 Certification (15.249), FCC Part 15 Verification Procedure Industry Canada RSS-210 Issue 9, Class B digital apparatus under ICES-003 Issue 6		
Test Method	:	47 CFR Part 15 (10-1-15 Edition), ANSI C63.4 – 2014, ANSI C63.10 – 2013, Industry Canada RSS-210 Issue 9, Industry Canada RSS-Gen Issue 6		
Test Engineer	:	Mr. LEUNG Shu-kan, Ken		
Test Result	:	See attached sheet(s) from page 2 to 42.		
Conclusion	:	The submitted sample was found to comply with requirement of FCC Subpart B and C, Industry Canada RSS-210 Issue 9, Class B digital apparatus under ICES-003 Issue 6.		

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____

Mr. WONG Lap-pong, Andrew
Manager
Electrical Division

FCC ID: QEA-U332-2G4R
IC: 22849-U332R

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com Web Site: http://www.cmatcl.com

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1 General Information

1.1 General Description

The equipment under test (EUT) is a remote cycle. The EUT is power by 9.6V rechargeable battery. It operates at 2413MHz – 2473MHz. When the EUT received the radio signal from controller, it will take the corresponding action.

The brief circuit description is listed as follows:

- U1	and its associated circuit act as MCU with RF circuit
- U2, L1, CE2, CE3, CE5	and its associated circuit act as step down DC
- U6, L3, D1, CE4	and its associated circuit act as step up DC
- U4, U5, VR1	and its associated circuit act as steering gear device
- U7, D3	and its associated circuit act as control level conversion
- Q1, Q2, Q3, Q4	and its associated circuit act as motor

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1.2 Location of the test site

FCC Registered Test Site Number: 416666
IC Registered Test Site Number: 4093A

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.10 – 2013. 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 C63.10 – 2013. A shielded room is located at :

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

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1.3 List of measuring equipment

Equipment	Manufacturer	Model No.	Serial No.	Calibration Due Date	Calibration Period
EMI Test Receiver	R&S	ESCI	100152	15 Nov 2017	1Year
Spectrum Analyzer	R&S	FSV40	100964	08 Feb 2018	1Year
Biconical Antenna	Rohde & Schwarz	HK116	837414/004	17 Aug 2017	1Year
Log Periodic Antenna	Teseq	UPA6109	43666	27 Jul 2017	1Year
Loop Antenna	EMCO	6502	00056620	25 Jan 2018	2Years
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-531	19 Dec 2018	2Years
Broadband Pre-Amplifier	Schwarzbeck	BBV 9718	9718-119	21 Dec 2018	2Years
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170442	02 Aug 2017	2Years
Broadband Pre-Amplifier	Schwarzbeck	BBV 9719	9719-010	02 Aug 2017	2Years
Horn Antenna	Schwarzbeck	BBHA 9120C	9120C 594	26 Jul 2018	2Years
Pre-amplifier	Schwarzbeck	BBV9718	BBV9718 297	24 Jul 2018	2Years
Coaxial Cable	Schaffner	RG 213/U	N/A	18 May 2018	1Year
Coaxial Cable	Suhner	RG 214/U	N/A	18 May 2018	1Year
Coaxial Cable	Suhner	Sucoflex_104	N/A	20 Dec 2017	1Year
LISN	Rohde & Schwarz	ENV216	101232	10 Nov 2017	1Year
Coaxial Cable	Tyco Electronics	RG58C/U	N/A	29 Oct 2017	1Year

Support equipment:
Charging adaptor: SRC1201500CU
Provide by client

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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)	4.83dB
30MHz ~ 200MHz (Vertical)	4.84dB
200MHz ~1000MHz (Horizontal)	4.87dB
200MHz ~1000MHz (Vertical)	5.94dB
1GHz ~6GHz	4.41dB
6GHz ~18GHz	4.64dB

Line-conducted emissions

Frequency	Uncertainty (U_{lab})
150kHz~30MHz	2.64dB

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2 Description of the emission test

2.1 Test Procedure

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.10 – 2013.

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 for below 1GHz measurement and 1.5m high above the ground for above 1GHz measurement. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. The turntable was rotated to maximize the emission level. The antenna was then 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.

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 1 m above the ground.

For 30MHz to 1GHz, broadband antenna with its vertical and horizontal plane is placed 3m from the EUT and rotated about its vertical and horizontal axis for maximum response at each azimuth about the EUT. And the reference point of antenna shall be 1 m above the ground.

For above 1GHz, horn antenna with its vertical and horizontal plane is placed 3m from the EUT and rotated about its vertical and horizontal axis for maximum response at each azimuth about the EUT. Preamplifier and High Pass filter was used for measurements. The reference point of antenna shall be 1 m above the ground.

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

The EUT will connect to TS 8997 testing system for direct conducted measurement.

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2.2 Radiated Emission Measurement Data

Environmental conditions:

Parameter	Recorded value	
Ambient temperature:	28	° C
Relative humidity:	75	%

Testing frequency range: 9kHz to 26GHz Mode: Transmission
Measurement: Quasi-peak (9kHz – 1GHz), Peak and Average(above 1GHz)
RBW: 9kHz (below 30MHz), 120kHz (30MHz – 1GHz), 1MHz (above 1GHz)
VBW: 30kHz (below 30MHz), 300kHz (30MHz – 1GHz,), 3MHz (above 1GHz, Peak measurement), 10Hz (above 1GHz, Average measurement)

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBµV)	Transducer Factor (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)	Measurement (Peak/ Average)
2413.106	H	88.9	- 4.7	84.2	114.0	- 29.8	Peak
2413.904	V	86.9	- 4.7	82.2	114.0	- 31.8	Peak
2449.969	H	88.3	- 4.7	83.6	114.0	- 30.4	Peak
2449.809	V	88.9	- 4.7	84.2	114.0	- 29.8	Peak
2473.068	H	87.2	- 4.7	82.5	114.0	- 31.5	Peak
2473.071	V	88.2	- 4.7	83.5	114.0	- 30.5	Peak
2490.187	H	71.3	- 4.7	66.6	74.0	- 7.4	Peak
2490.187	H	24.7	- 4.7	20.0	54.0	- 34.0	Average
2490.035	V	66.9	- 4.7	62.2	74.0	- 11.8	Peak
2490.035	V	24.7	- 4.7	20.0	54.0	- 34.0	Average
2507.624	H	71.5	- 4.7	66.8	74.0	- 7.2	Peak
2507.624	H	24.8	- 4.7	20.1	54.0	- 33.9	Average
2507.480	V	66.7	- 4.7	62.0	74.0	- 12.0	Peak
2507.480	V	24.7	- 4.7	20.0	54.0	- 34.0	Average
2543.552	H	71.0	- 4.7	66.3	74.0	- 7.7	Peak
2543.552	H	24.5	- 4.7	19.8	54.0	- 34.2	Average
2543.455	V	62.9	- 4.7	58.2	74.0	- 15.8	Peak
2543.455	V	24.5	- 4.7	19.8	54.0	- 34.2	Average

Remark: Other emissions more than 20dB below the limit are not reported.
If Peak measurement values are lower than average limit, average measurement is not necessary.

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Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBµV)	Transducer Factor (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)	Measurement (Peak/ Average)
4825.642	H	56.7	3.0	59.7	74.0	- 14.3	Peak
4825.922	H	28.1	3.0	31.1	54.0	- 22.9	Average
4825.535	V	53.7	3.0	56.7	74.0	- 17.3	Peak
4825.957	V	27.4	3.0	30.4	54.0	- 23.6	Average
4899.960	H	55.3	3.0	58.3	74.0	- 15.7	Peak
4899.894	H	27.5	3.0	30.5	54.0	- 23.5	Average
4899.933	V	51.0	3.0	54.0	74.0	- 20.0	Peak
4899.982	V	26.3	3.0	29.3	54.0	- 24.7	Average
4945.597	H	53.7	3.6	57.3	74.0	- 16.7	Peak
4945.985	H	27.0	3.6	30.6	54.0	- 23.4	Average
4945.962	V	51.7	3.6	55.3	74.0	- 18.7	Peak
4945.908	V	26.5	3.6	30.1	54.0	- 23.9	Average
9651.294	H	42.0	13.5	55.5	74.0	- 18.5	Peak
9651.780	H	22.5	13.5	36.0	54.0	- 18.0	Average
9800.253	H	43.5	13.5	57.0	74.0	- 17.0	Peak
9799.824	H	23.2	13.5	36.7	54.0	- 17.3	Average
9892.353	H	42.8	13.5	56.3	74.0	- 17.7	Peak
9891.786	H	23.3	13.5	36.8	54.0	- 17.2	Average

Remark: Other emissions more than 20dB below the limit are not reported.
If Peak measurement values are lower than average limit, average measurement is not necessary.

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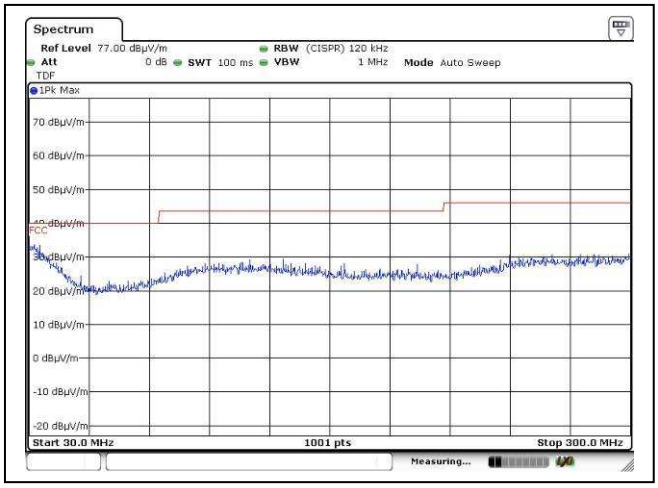
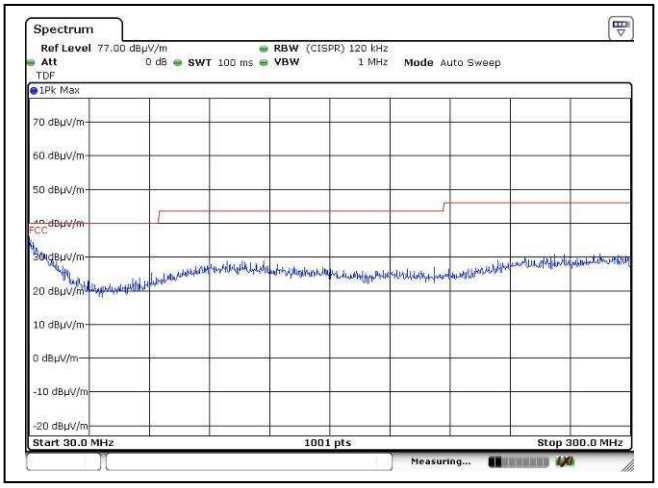
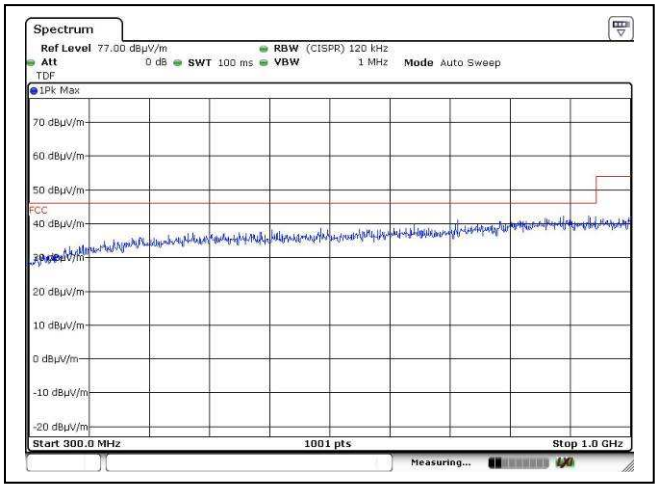
2.2 Radiated Emission Measurement Data (Con't)



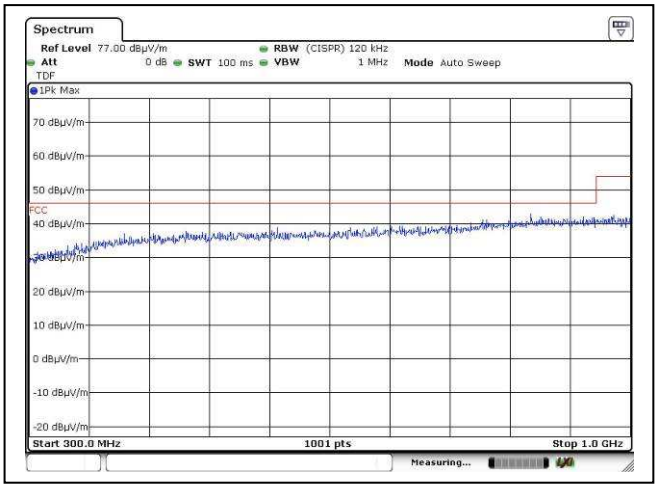
Lower channel, 30MHz – 300MHz, Horizontal



Lower channel, 30MHz – 300MHz, Vertical



Lower channel, 300MHz – 1GHz, Horizontal



Lower channel, 300MHz – 1GHz, Vertical

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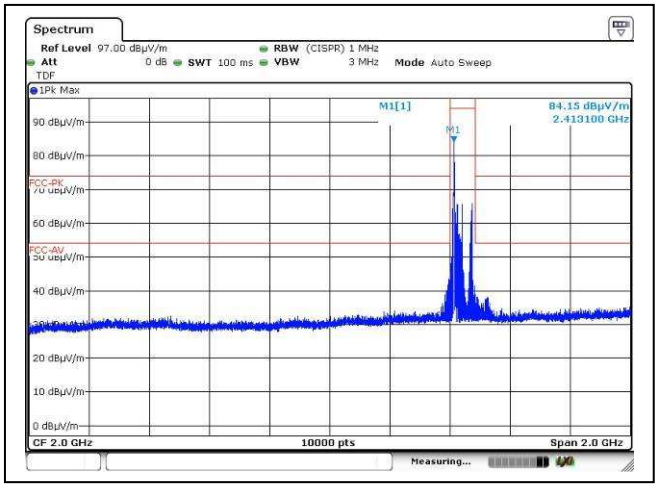
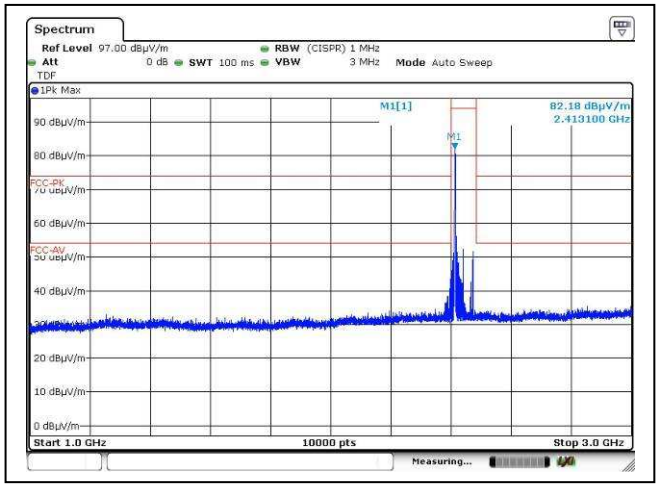
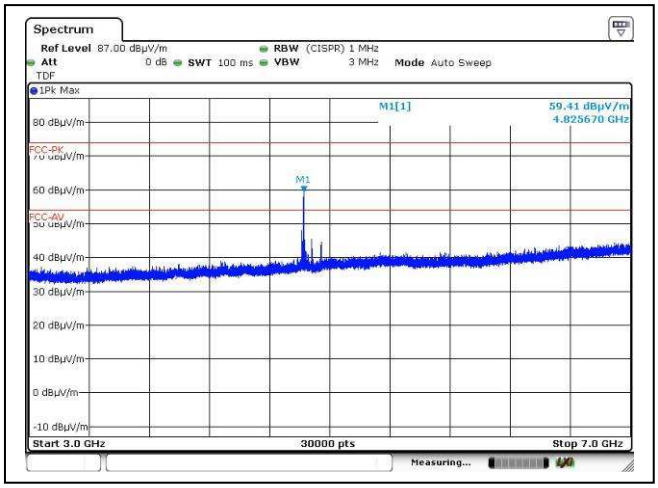


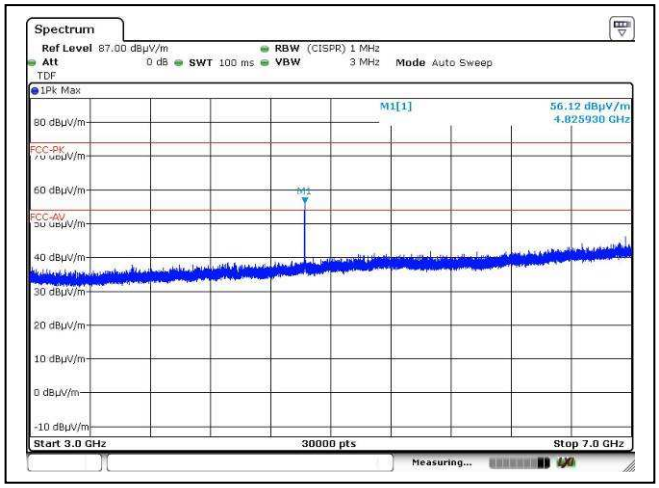
Lower channel, 1GHz – 3GHz, Horizontal



Lower channel, 1GHz – 3GHz, Vertical



Lower channel, 3GHz – 7GHz, Horizontal



Lower channel, 3GHz – 7GHz, Vertical

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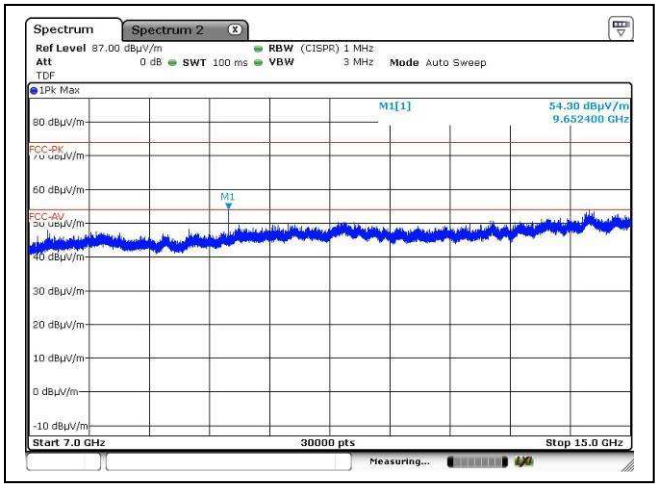
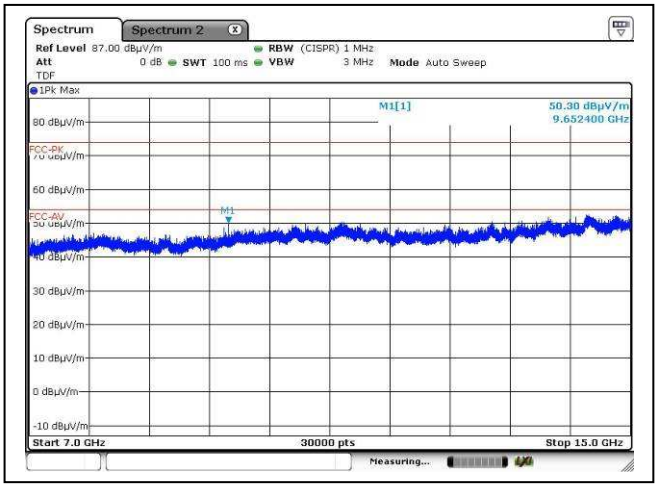
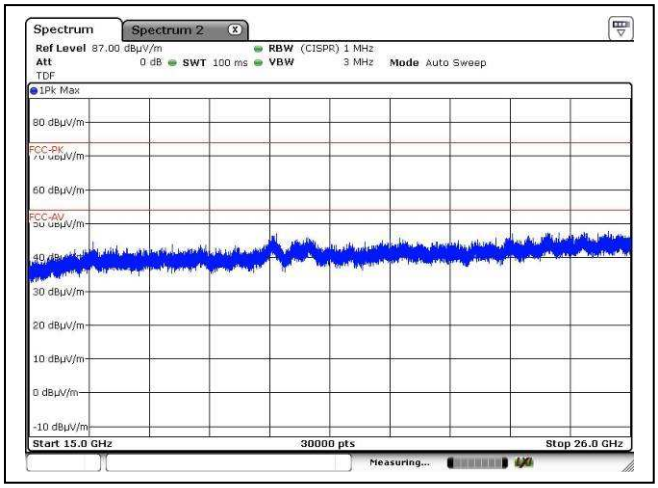


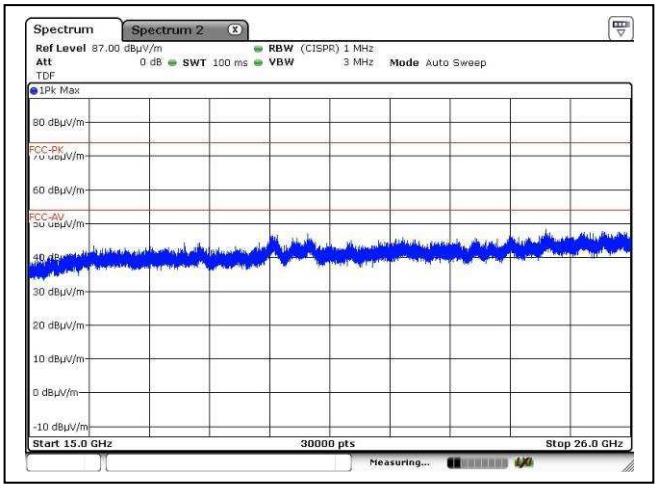
Lower channel, 7GHz – 15GHz, Horizontal



Lower channel, 7GHz – 15GHz, Vertical



Lower channel, above 15GHz, Horizontal



Lower channel, above 15GHz, Vertical

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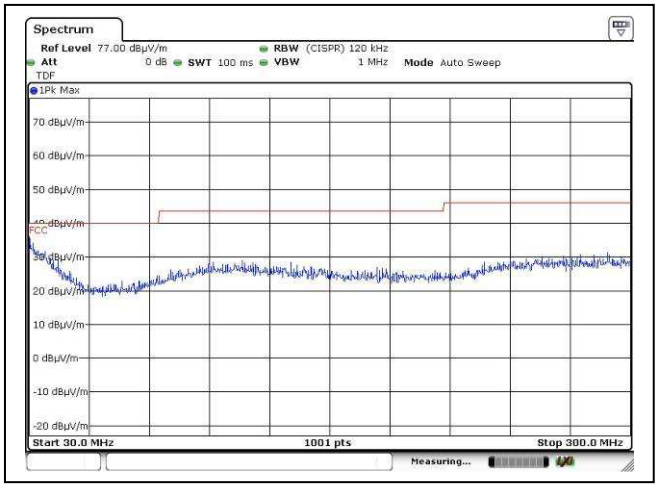
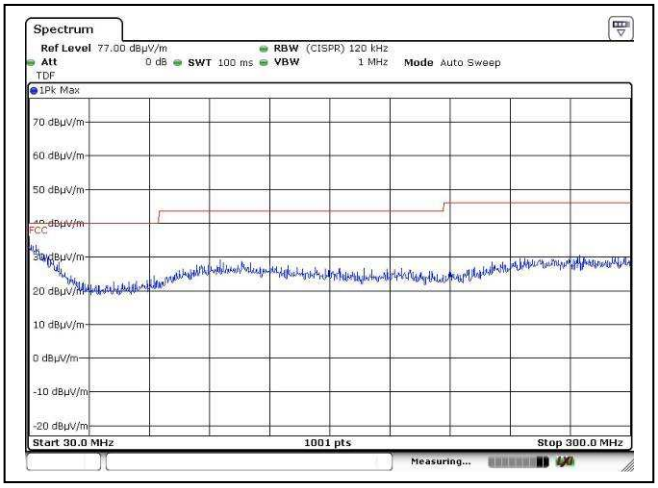
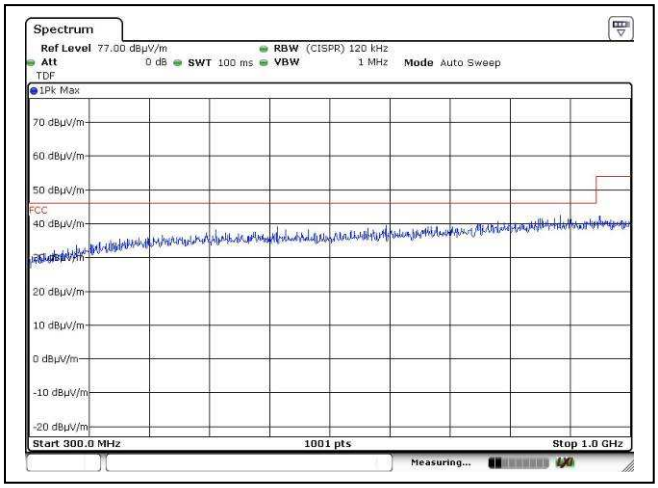


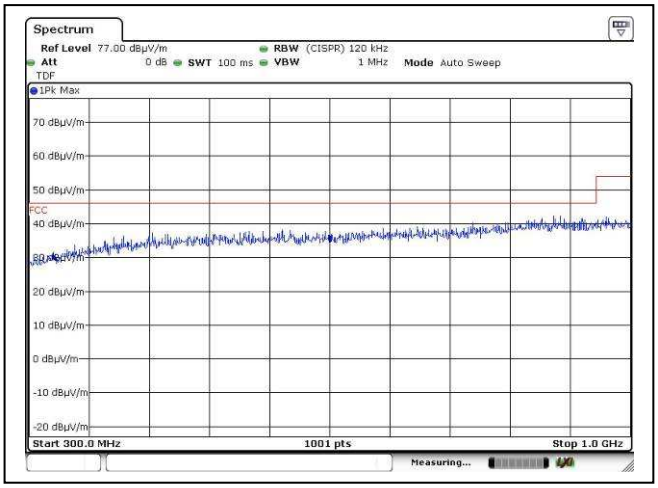
Middle channel, 30MHz – 300MHz, Horizontal



Middle channel, 30MHz – 300MHz, Vertical



Middle channel, 300MHz – 1GHz, Horizontal



Middle channel, 300MHz – 1GHz, Vertical

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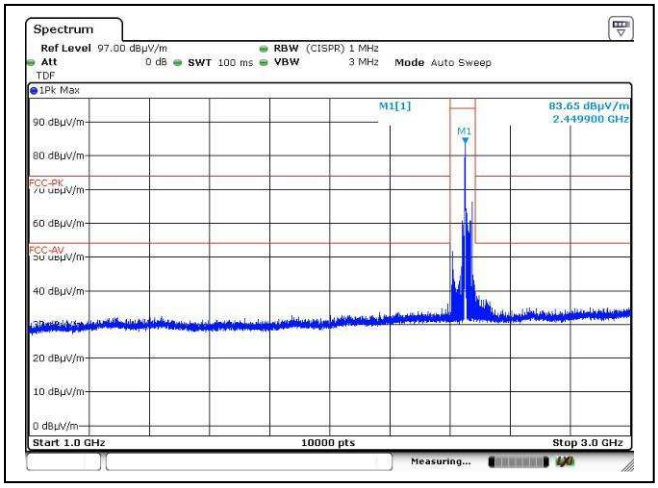
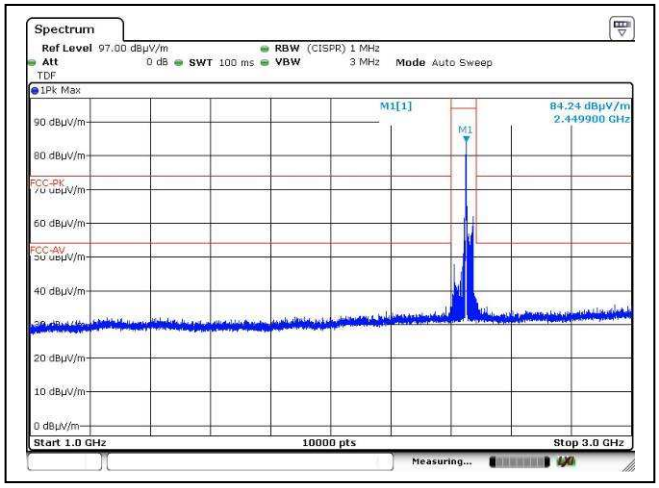
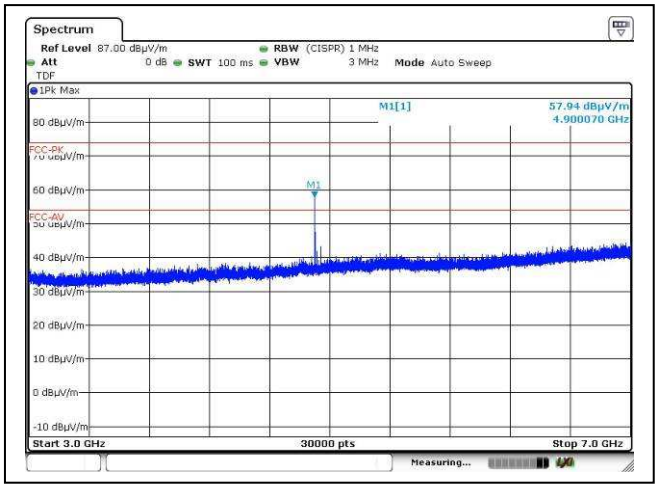


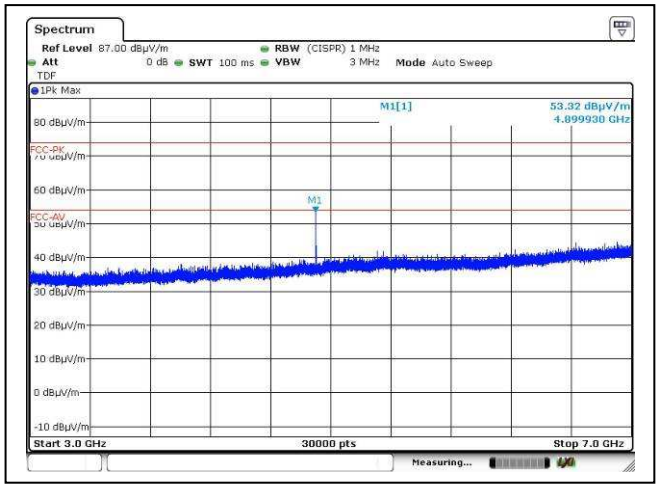
Middle channel, 1GHz – 3GHz, Horizontal



Middle channel, 1GHz – 3GHz, Vertical



Middle channel, 3GHz – 7GHz, Horizontal



Middle channel, 3GHz – 7GHz, Vertical

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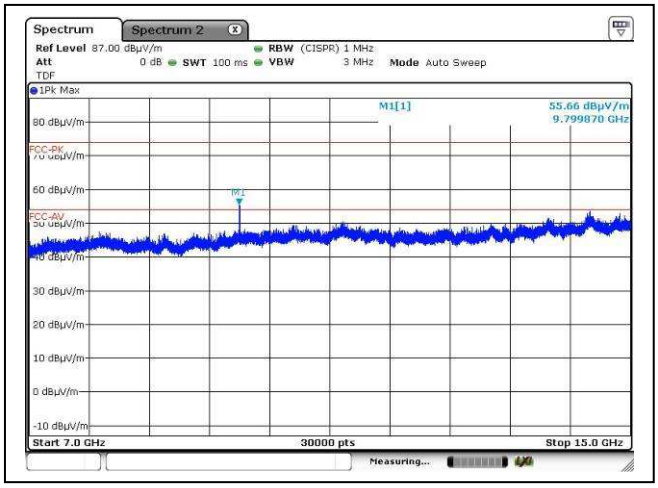
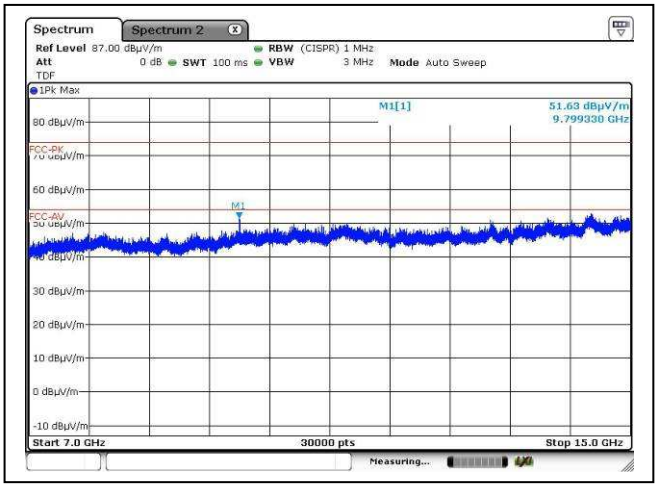
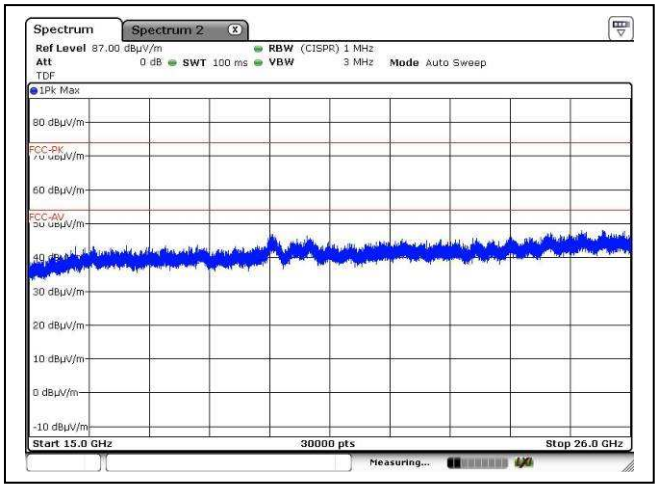
2.2 Radiated Emission Measurement Data (Con't)



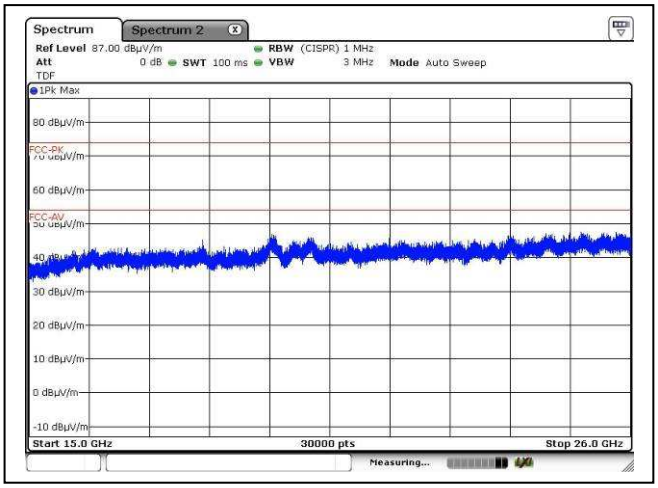
Middle channel, 7GHz – 15GHz, Horizontal



Middle channel, 7GHz – 15GHz, Vertical



Middle channel, above 15GHz, Horizontal



Middle channel, above 15GHz, Vertical

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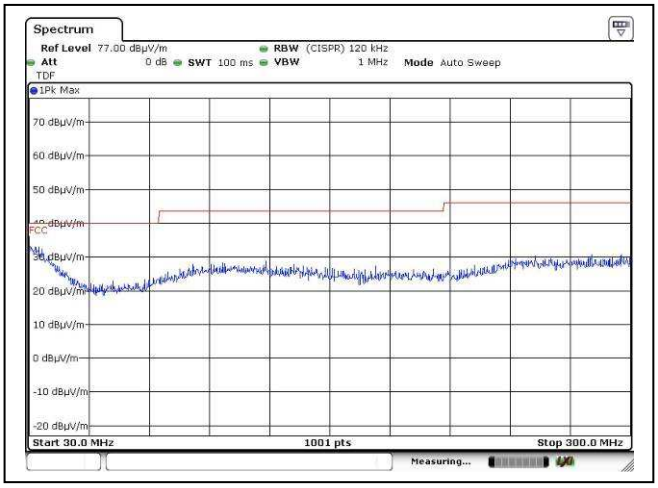
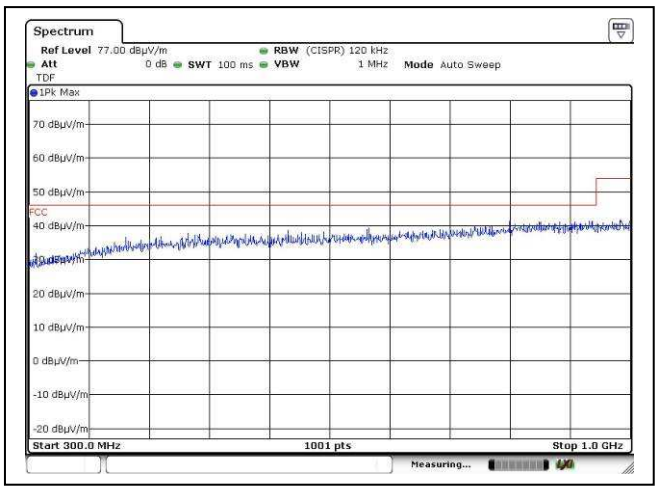
2.2 Radiated Emission Measurement Data (Con't)

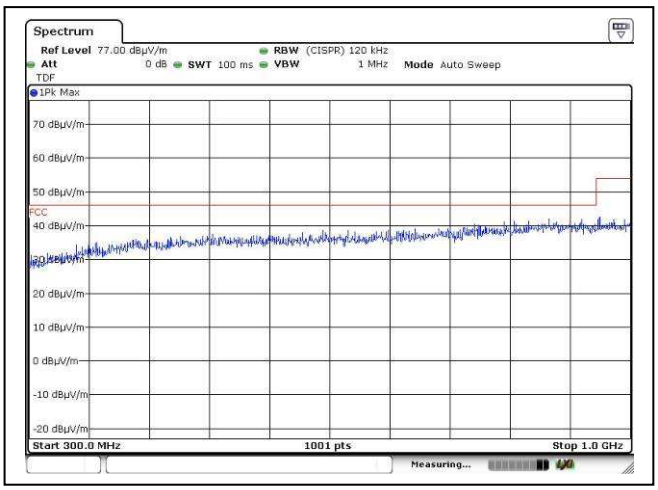
Higher channel, 30MHz – 300MHz, Horizontal



Higher channel, 30MHz – 300MHz, Vertical



Higher channel, 300MHz – 1GHz, Horizontal



Higher channel, 300MHz – 1GHz, Vertical

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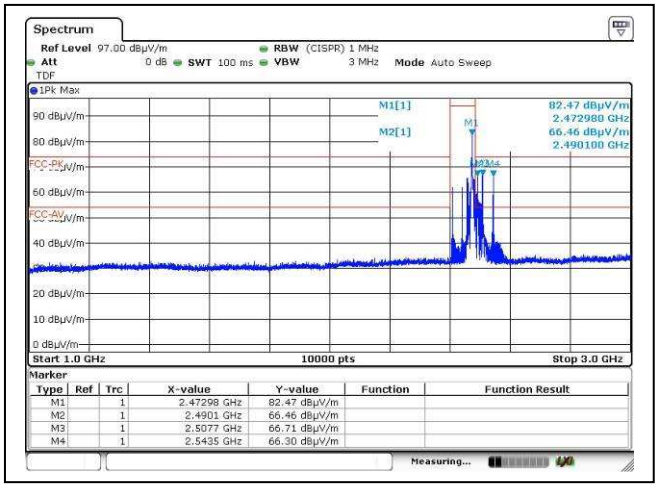
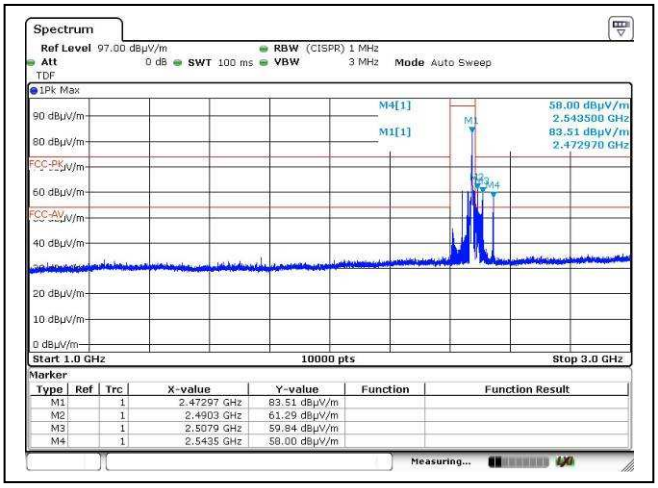
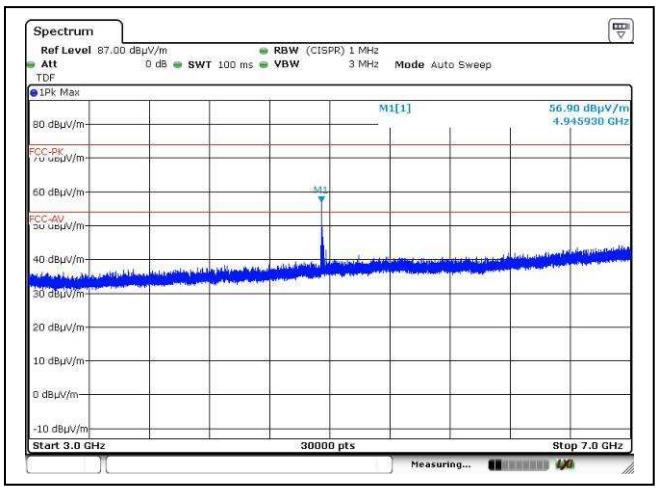
2.2 Radiated Emission Measurement Data (Con't)



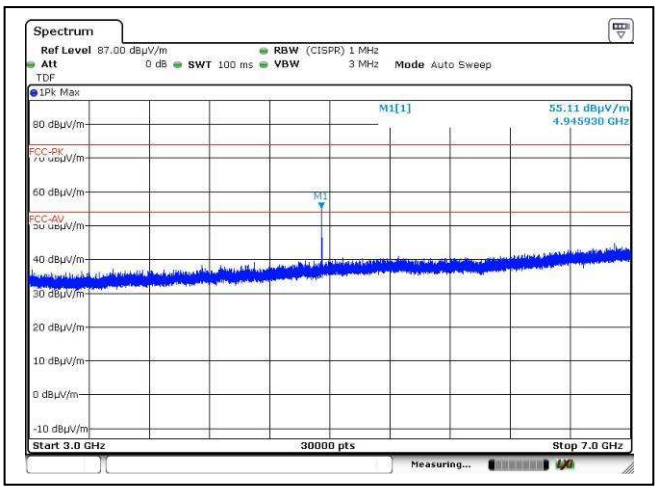
Higher channel, 1GHz – 3GHz, Horizontal



Higher channel, 1GHz – 3GHz, Vertical



Higher channel, 3GHz – 7GHz, Horizontal



Higher channel, 3GHz – 7GHz, Vertical

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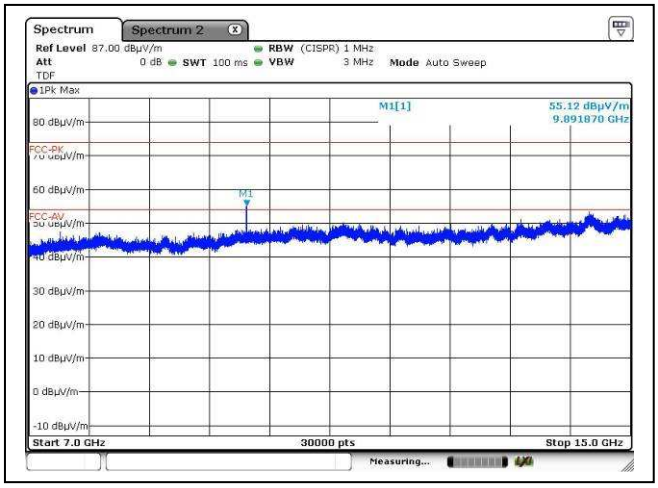
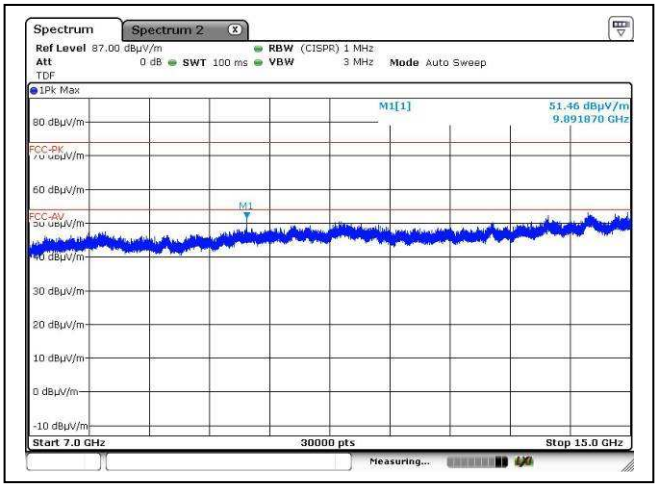
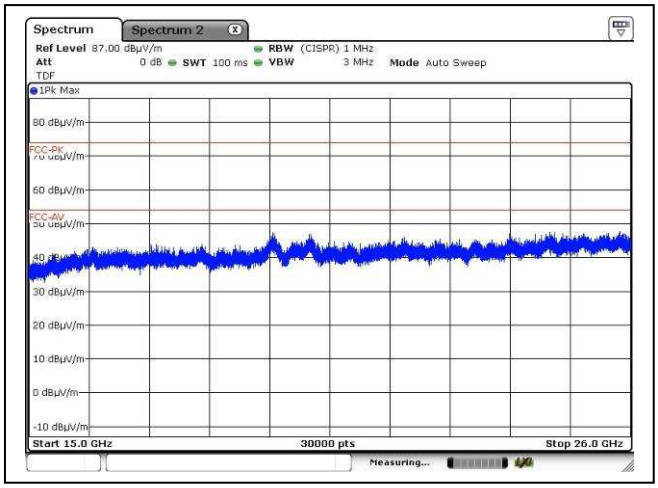
2.2 Radiated Emission Measurement Data (Con't)



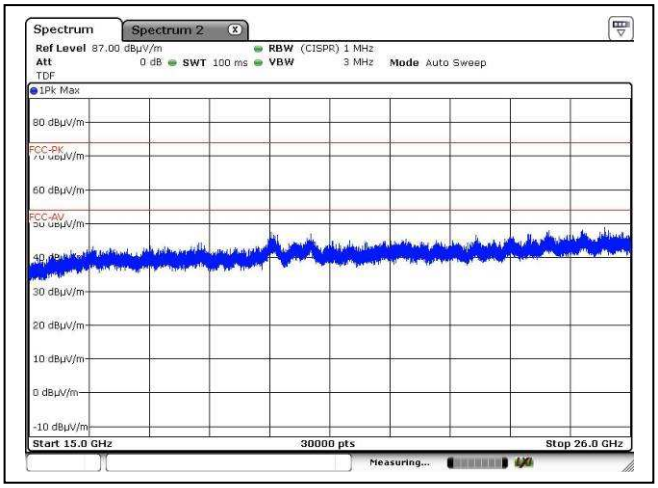
Higher channel, 7GHz – 15GHz, Horizontal



Higher channel, 7GHz – 15GHz, Vertical



Higher channel, above 15GHz, Horizontal



Higher channel, above 15GHz, Vertical

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2.2 Radiated Emission Measurement Data (Con't)

Environmental conditions:

Parameter	Recorded value	
Ambient temperature:	28	° C
Relative humidity:	75	%

Testing frequency range: 9kHz to 26GHz Mode: Receiving
Measurement: Quasi-peak (9kHz – 1GHz), Peak (above 1GHz)
RBW: 9kHz (below 30MHz), 120KHz (30MHz – 1GHz), 1MHz (above 1GHz)
VBW: 30kHz (below 30MHz), 300kHz (30MHz – 1GHz), 3MHz (above 1GHz)

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBµV)	Transducer Factor (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)

Remark: No specified emission found

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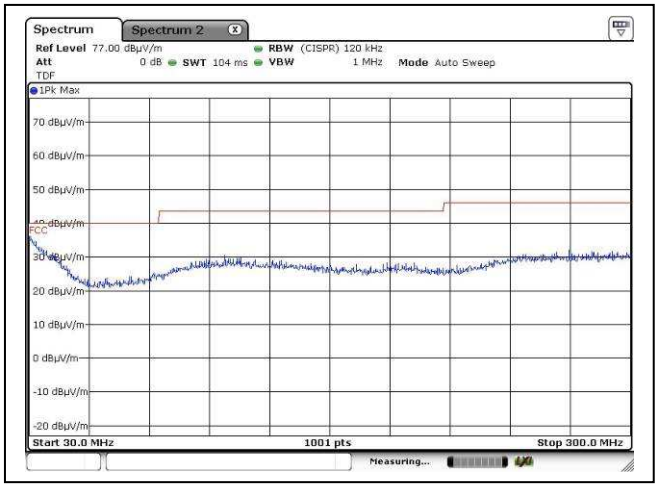
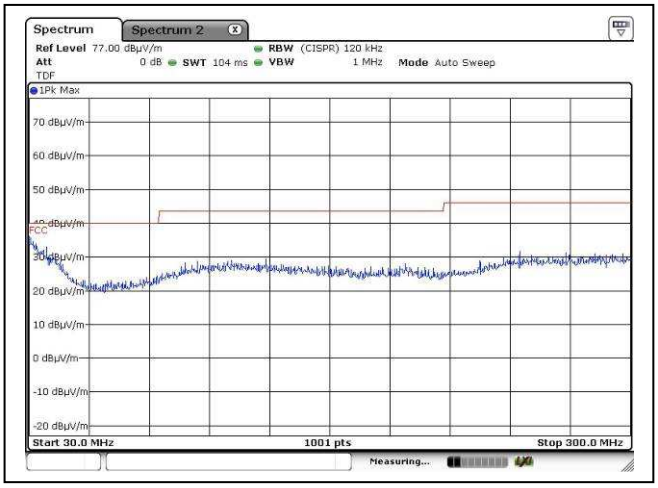
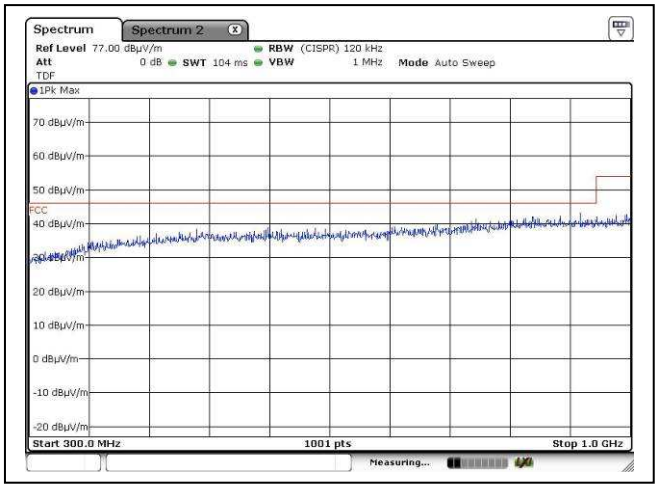
2.2 Radiated Emission Measurement Data (Con't)



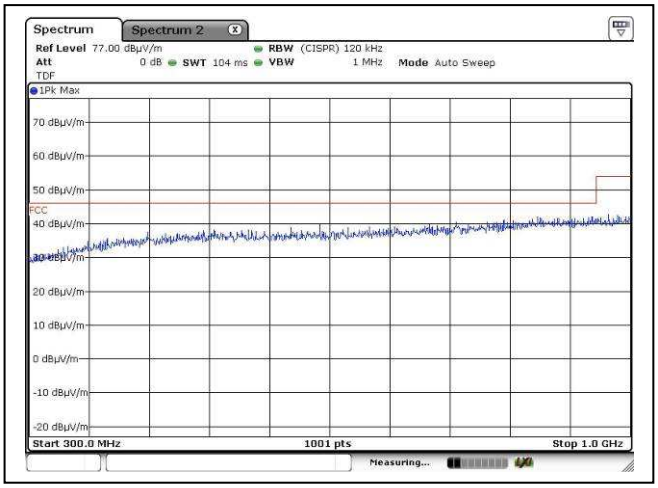
Receiving mode, 30MHz – 300MHz, Horizontal



Receiving mode, 30MHz – 300MHz, Vertical



Receiving mode, 300MHz – 1GHz, Horizontal



Receiving mode, 300MHz – 1GHz, Vertical

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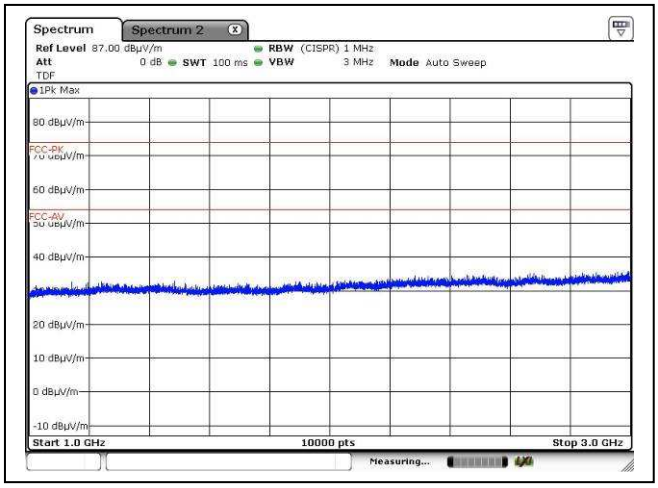
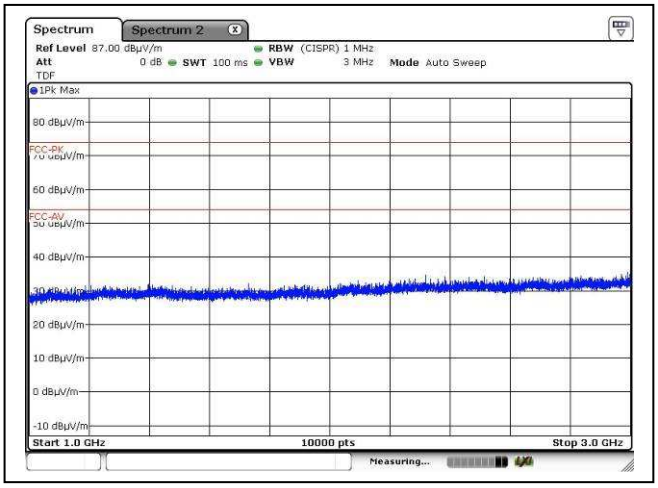
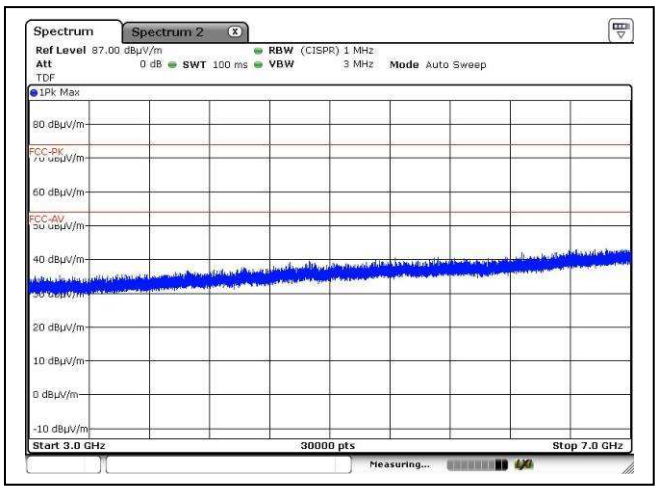
2.2 Radiated Emission Measurement Data (Con't)



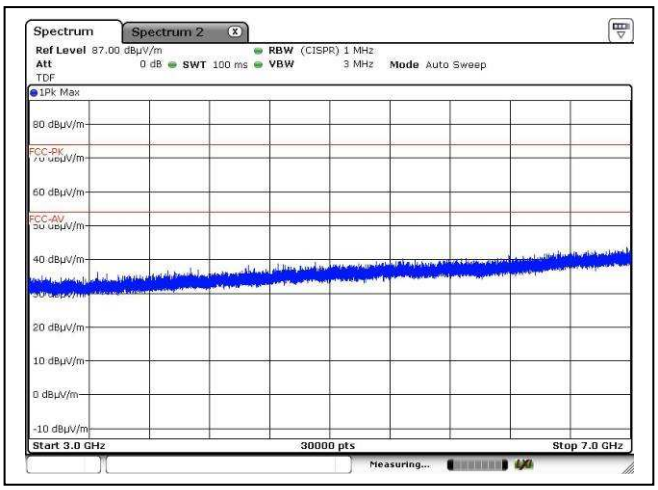
Receiving mode, 1GHz – 3GHz, Horizontal



Receiving mode, 1GHz – 3GHz, Vertical



Receiving mode, 3GHz – 7GHz, Horizontal



Receiving mode, 3GHz – 7GHz, Vertical

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TEST REPORT

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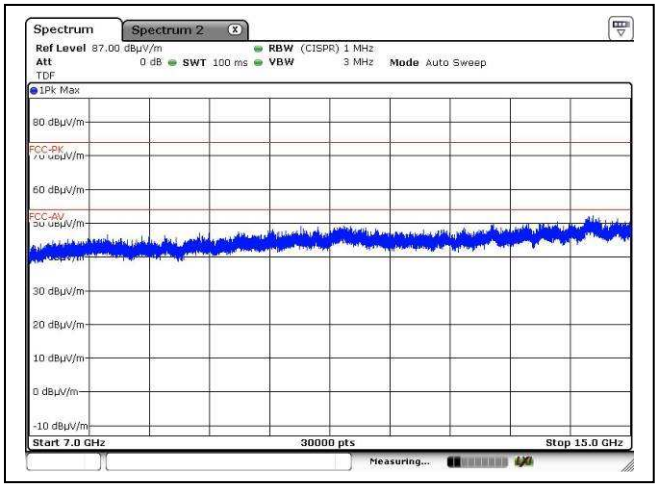
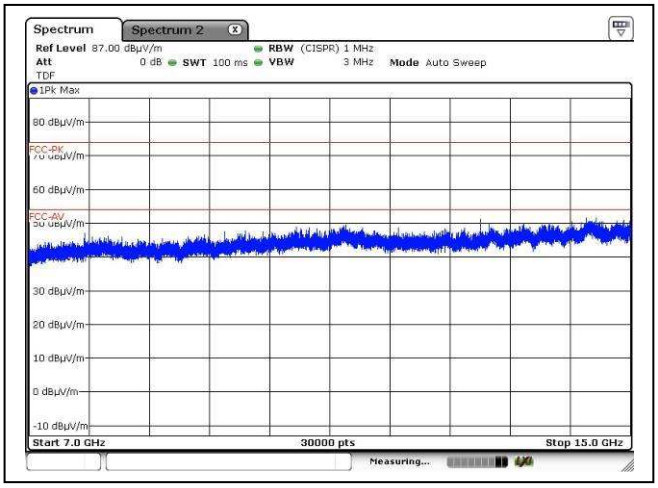
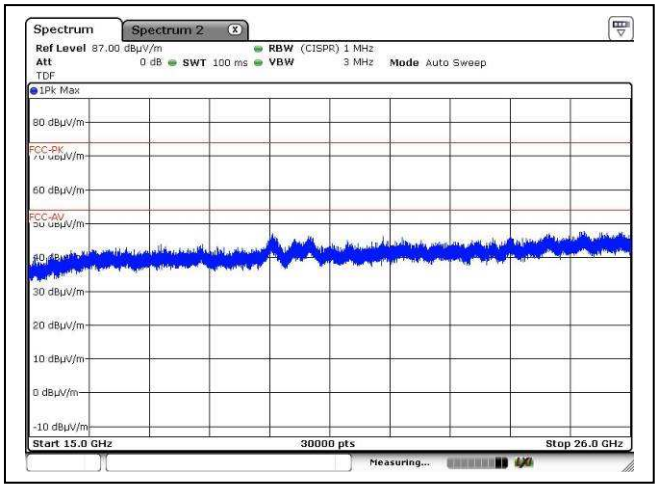
2.2 Radiated Emission Measurement Data (Con't)



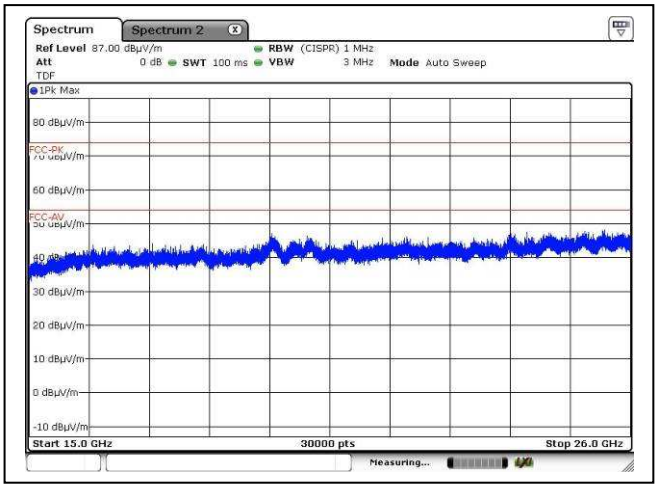
Receiving mode, 7GHz – 15GHz, Horizontal



Receiving mode, 7GHz – 15GHz, Vertical



Receiving mode, above 15GHz, Horizontal



Receiving mode, above 15GHz, Vertical

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2.2 Radiated Emission Measurement Data (Con't)

Environmental conditions:

Parameter	Recorded value	
Ambient temperature:	28	° C
Relative humidity:	75	%

Testing frequency range: 9kHz to 1GHz Mode: Charging
Measurement: Quasi-peak
RBW: 120KHz
VBW: 300kHz

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBµV)	Transducer Factor (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)

Remark: No specified emission found

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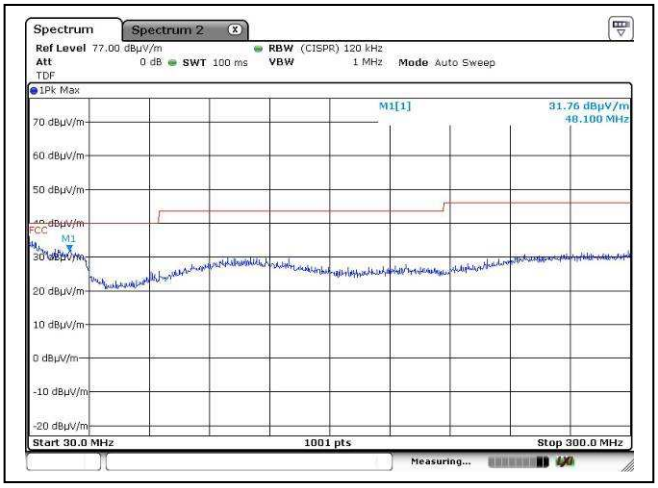
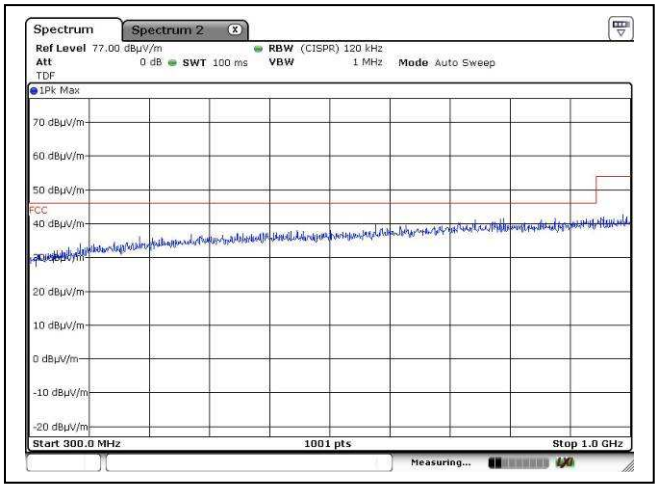
2.2 Radiated Emission Measurement Data (Con't)

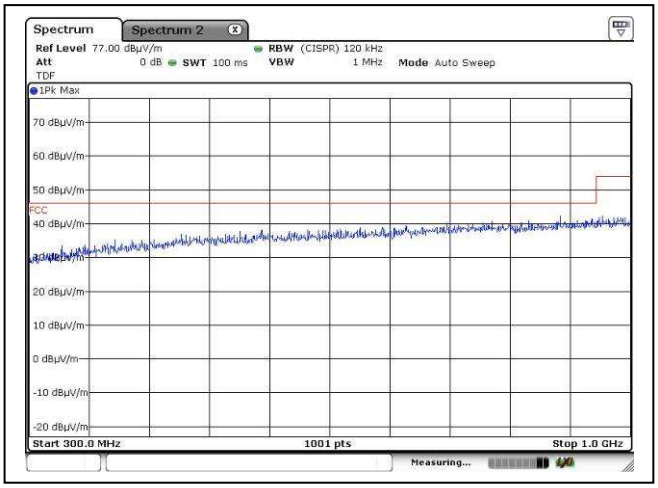
Charging mode, 30MHz – 300MHz, Horizontal



Charging mode, 30MHz – 300MHz, Vertical



Charging mode, 300MHz – 1GHz, Horizontal



Charging mode, 300MHz – 1GHz, Vertical

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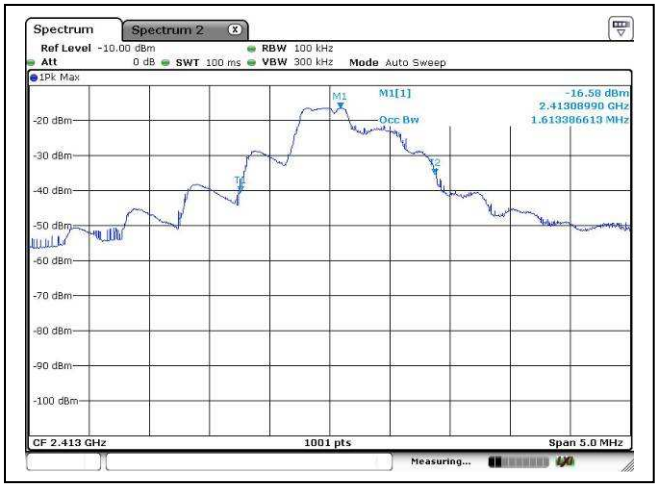
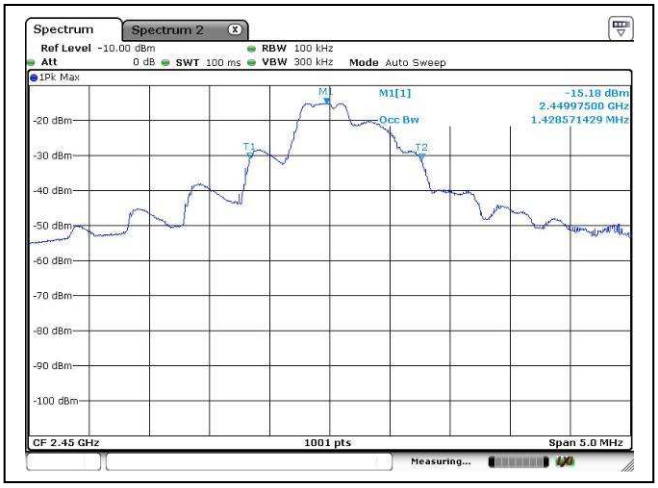
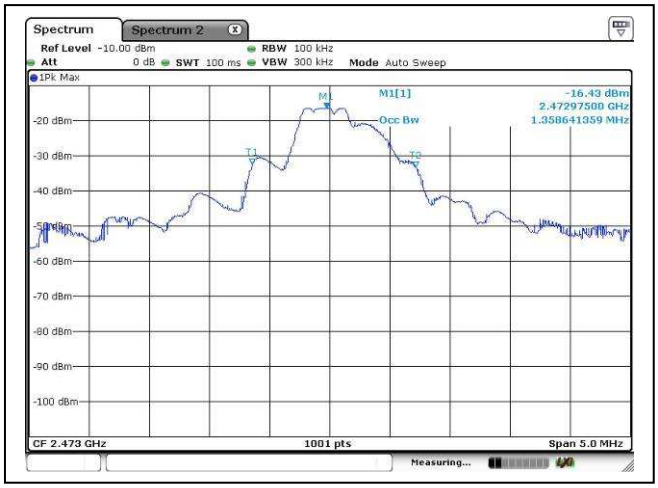
2.3 99% Bandwidth



Lower channel



Middle channel



Higher channel

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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 C63.10 – 2013. The EUT was setup as described in the procedures, and both lines were measured.

3.2 Test Result

The EUT connected to an adaptor for cahrging

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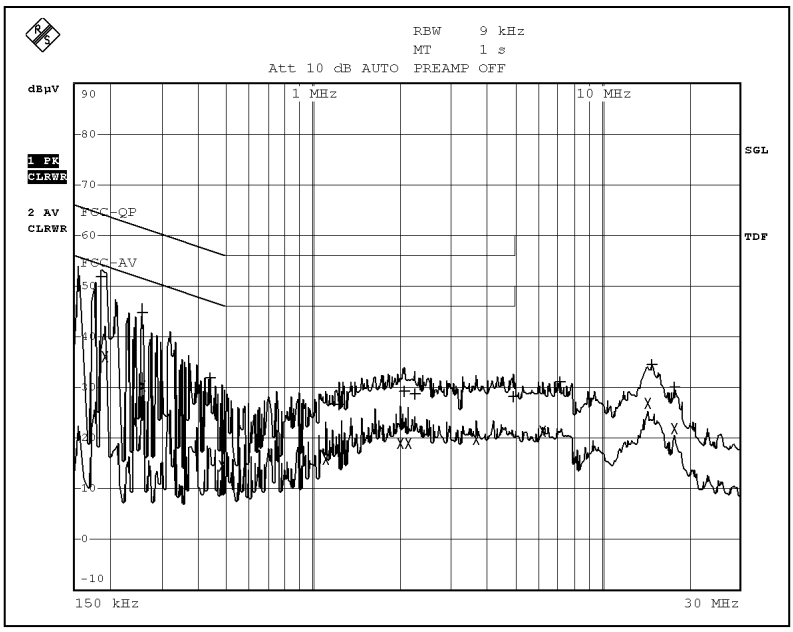
3.3 Graph and Table of Conducted Emission Measurement Data



EDIT PEAK LIST (Final Measurement Results)

Trace1: FCC-QP
Trace2: FCC-AV
Trace3: ---

TRACE		FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	186 kHz	51.78	N gnd	-12.42
2	Average	190.5 kHz	36.06	N gnd	-17.94
1	Quasi Peak	258 kHz	44.71	N gnd	-16.77
2	Average	258 kHz	30.22	N gnd	-21.27
1	Quasi Peak	442.5 kHz	31.90	N gnd	-25.11
2	Average	487.5 kHz	14.46	L1 gnd	-31.74
2	Average	1.103 MHz	15.78	L1 gnd	-30.22
1	Quasi Peak	1.229 MHz	26.63	L1 gnd	-29.36
2	Average	2.012 MHz	18.99	L1 gnd	-27.00
1	Quasi Peak	2.0705 MHz	29.20	L1 gnd	-26.79
2	Average	2.147 MHz	19.06	L1 gnd	-26.93
1	Quasi Peak	2.246 MHz	28.74	L1 gnd	-27.25
2	Average	3.677 MHz	19.73	N gnd	-26.26
1	Quasi Peak	4.964 MHz	28.19	N gnd	-27.80
2	Average	6.251 MHz	21.39	N gnd	-28.60
1	Quasi Peak	7.178 MHz	31.09	N gnd	-28.90
2	Average	14.378 MHz	26.94	N gnd	-23.05
1	Quasi Peak	14.9495 MHz	34.49	N gnd	-25.50
2	Average	17.7935 MHz	22.00	N gnd	-27.99
1	Quasi Peak	17.87 MHz	29.90	N gnd	-30.09

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4 Photograph

4.1 Photographs of the Test Setup for Radiated Emission and Conducted Emission

For electronic filing, the photos are saved with filename QEA-U332-2G4R TSup.pdf.

4.2 Photographs of the External and Internal Configurations of the EUT

For electronic filing, the photos are saved with filename QEA-U332-2G4R ExPho.pdf and QEA-U332-2G4R InPho.pdf.

4.3 Antenna requirement

Appendices A4 shows the antenna is permanently attached and cannot be changed. Therefore it fulfils the section 15.203 requirement

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5 Appendices

A1	Photos of the set-up of Radiated Emissions	4	pages
A2	Photos of the set-up of Line-conducted Emissions	1	page
A3	Photos of External Configurations	4	pages
A4	Photos of Internal Configurations	2	pages
A5	ID Label/Location	2	pages

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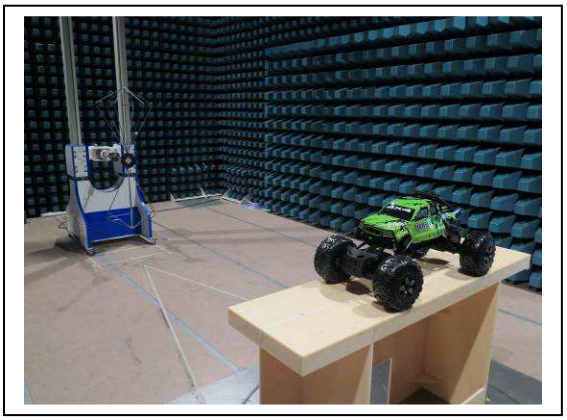
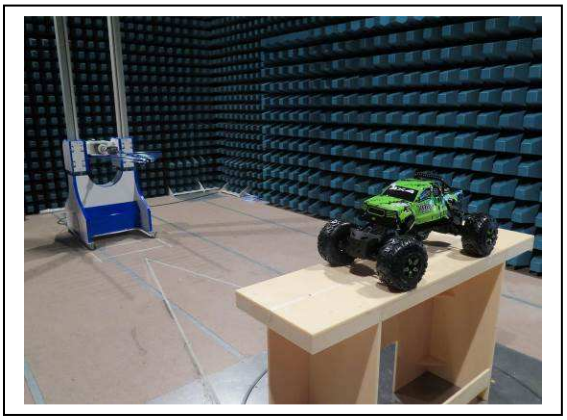
A1. Photos of the set-up of Radiated Emissions



30MHz – 300MHz



300MHz – 1GHz

Tested by: Mr. LEUNG Shu-kan, Ken

Reviewed by: Mr. WONG Lap-pong, Andrew

FCC ID: QEA-U332-2G4R
IC: 22849-U332R

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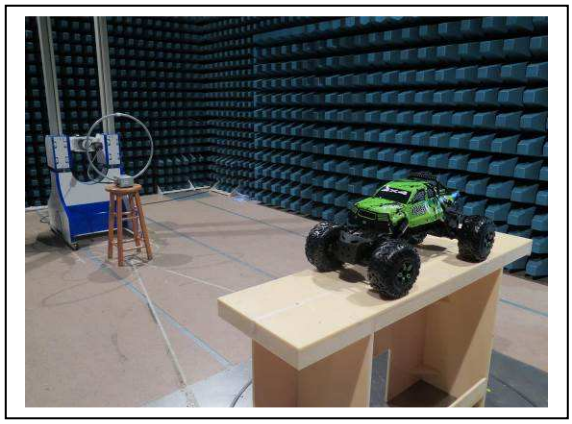
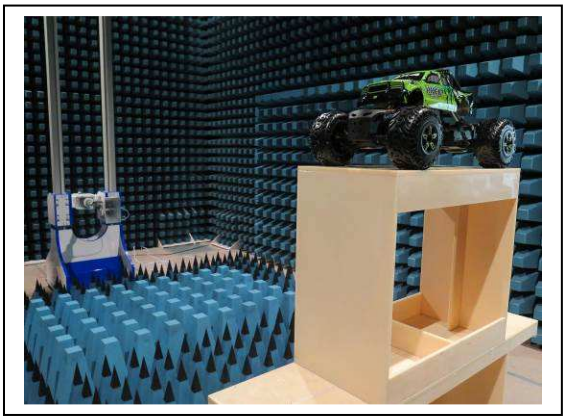
TEST REPORT

Report No. : AV0035180(6) Date : 20 Jun 2017

A1. Photos of the set-up of Radiated Emissions



9kHz – 30MHz



Above 1GHz

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Reviewed by: Mr. WONG Lap-pong, Andrew

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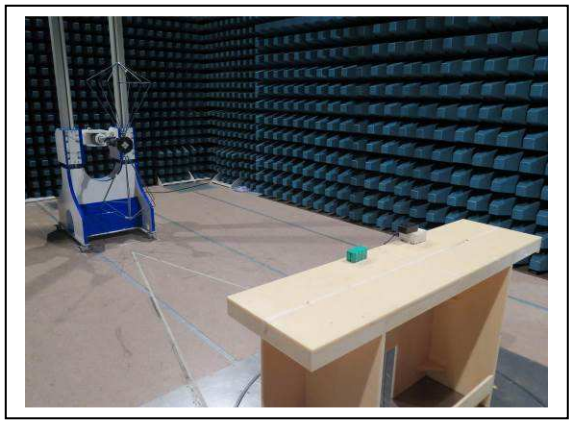
TEST REPORT

Report No. : AV0035180(6) Date : 20 Jun 2017

A1. Photos of the set-up of Radiated Emissions



30MHz – 300MHz (Charging, front view)

30MHz – 300MHz (Charging, rear view)

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TEST REPORT

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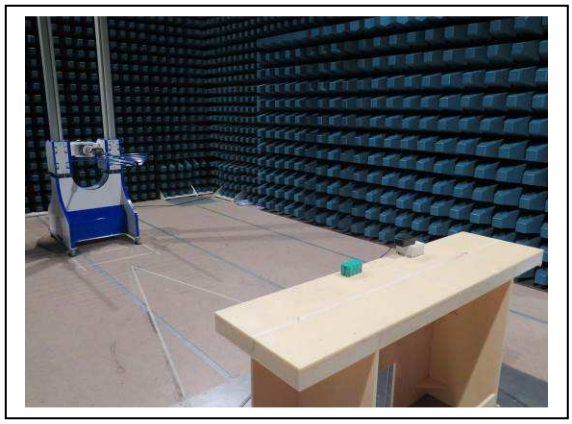
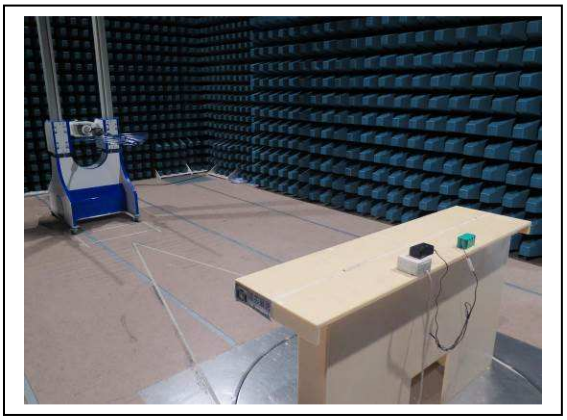
A1. Photos of the set-up of Radiated Emissions



300MHz – 1GHz (Charging, front view)



300MHz – 1GHz (Charging, rear view)

Tested by: Mr. LEUNG Shu-kan, Ken

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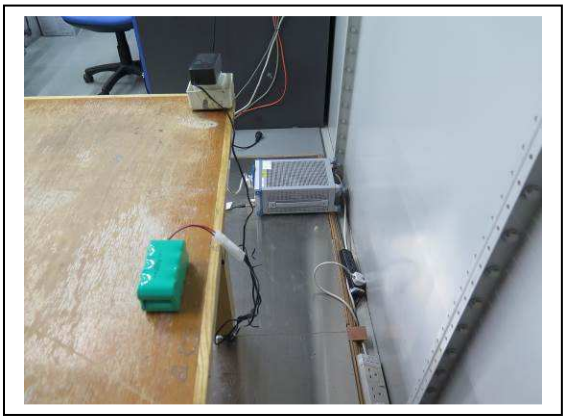
A2. Photos of the set-up of Line-conducted Emissions

Front view



Side view

Tested by: Mr. LEUNG Shu-kan, Ken

Reviewed by: Mr. WONG Lap-pong, Andrew

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TEST REPORT

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A3 Photos of External Configurations

External Configuration 1

External Configuration 2

Tested by: Mr. LEUNG Shu-kan, Ken

Reviewed by: Mr. WONG Lap-pong, Andrew

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A3 Photos of External Configurations

External Configuration 3

External Configuration 4

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TEST REPORT

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A3 Photos of External Configurations

External Configuration 5

External Configuration 6 (charging adaptor)

Tested by: Mr. LEUNG Shu-kan, Ken

Reviewed by: Mr. WONG Lap-pong, Andrew

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TEST REPORT

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A3 Photos of External Configurations

External Configuration 7 (charging adaptor)

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Reviewed by: Mr. WONG Lap-pong, Andrew

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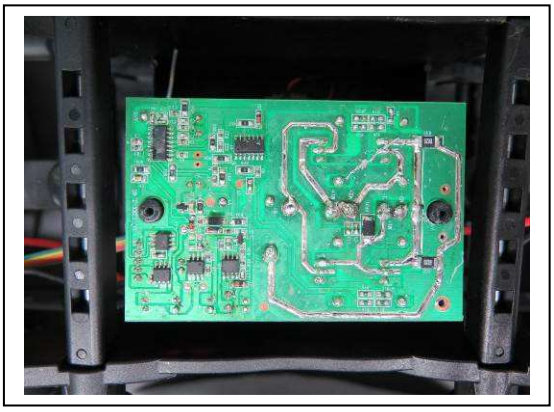
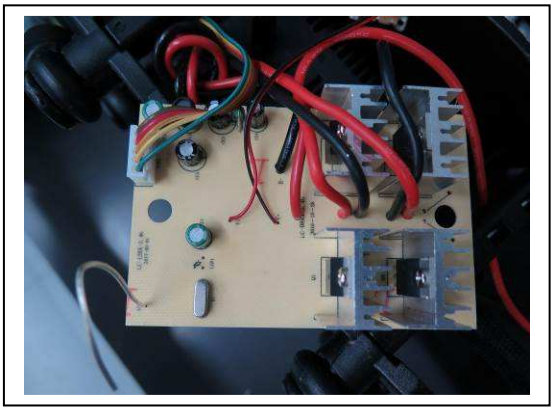
A4 Photos of Internal Configurations



Internal Configuration 1



Internal Configuration 2

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Reviewed by: Mr. WONG Lap-pong, Andrew

FCC ID: QEA-U332-2G4R
IC: 22849-U332R

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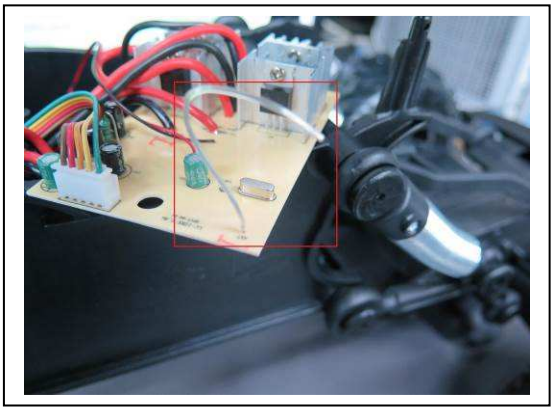
A4 Photos of Internal Configurations



EUT antenna

Tested by: Mr. LEUNG Shu-kan, Ken

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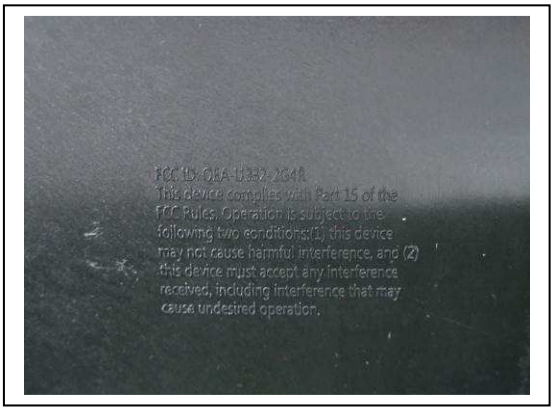
TEST REPORT

Report No. : AV0035180(6) Date : 20 Jun 2017

A5 ID Label / Location

ID Label 1



ID Label 2

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TEST REPORT

Report No. : AV0035180(6) Date : 20 Jun 2017

A5 ID Label / Location

ID Label 3

ID Label 4

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

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