STC Test Report

Date: 2011-08-22
No.: MH185438

Applicant (C00676):	Shenzhen Shenchuang Electronics Co., Ltd. 7th Floor, West Tower, Hengfang Laobing Industrial Park, Xingye Road, Xixiang Town, Baoan District, shenzhen, China
Manufacturer:	Shenzhen Shenchuang Electronics Co., Ltd. 7th Floor, West Tower, Hengfang Laobing Industrial Park, Xingye Road, Xixiang Town, Baoan District, shenzhen, China
Description of Sample(s):	Product: TV BOX Brand Name: N/A Model Number: T10 FCC ID: ZIET10
Date Sample(s) Received:	2011-07-05
Date Tested:	2011-07-06 to 2011-08-07
Investigation Requested:	Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2010 and ANSI C63.4:2009 for FCC Certification.
Conclusion(s):	The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.
Remark(s):	---

Dr. LEE Kam Chuen
Authorized Signatory
ElectroMagnetic Compatibility Department
For and on behalf of
The Hong Kong Standards and Testing Centre Ltd.

STC Test Report

CONTENT:

1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd.
EMC Laboratory
10 Dai Wang Street, Taipo Industrial Estate
New Territories, Hong Kong

1.2 Equipment Under Test [EUT]
Description of Sample(s)

Product:	TV BOX
Manufacturer:	Shenzhen Shenchuang Electronics Co., Ltd.
Brand Name:	N/A
Model Number:	T10
Rating:	9.0Vd.c. with Jack

The AC/DC adapter was provided by the applicant with following details:
Brand name: N/A; Model no.GP303E-090-200; Input: 100-240Va.c. 50/60Hz 0.8A;
Output: 9.0Vd.c. 2A.

1.2.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Shenzhen Shenchuang Electronics Co., Ltd., TV BOX. The transmission signal is frequency hopping with channel frequency range 2402.0.-2480.0MHz during normal use. The EUT was set to fixed frequency test mode by application. During the test , the EUT Connected USB flash drive & USB keyboard & USB mouse / TV, and communication with 2.4GHz Controller.

1.3 Date of Order

2011-07-05

1.4 Submitted Sample(s):

1 Sample

1.5 Test Duration

2011-07-06 to 2011-08-07

1.6 Country of Origin

China

2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2010 Regulations and ANSI C63.4:2009 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Fail	N/A
Field Strength of Fundamental & Harmonics Emissions	FCC 47CFR 15.249	ANSI C63.4:2009	N/A	☒	☐	☐
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.4:2009	N/A	☒	☐	☐
Conducted Emissions	FCC 47CFR 15.207	N/A	N/A			
Antenna requirement	FCC 47CFR 15.203	N/A	N/A	☒	☐	☐

Note: N/A - Not Applicable

3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions

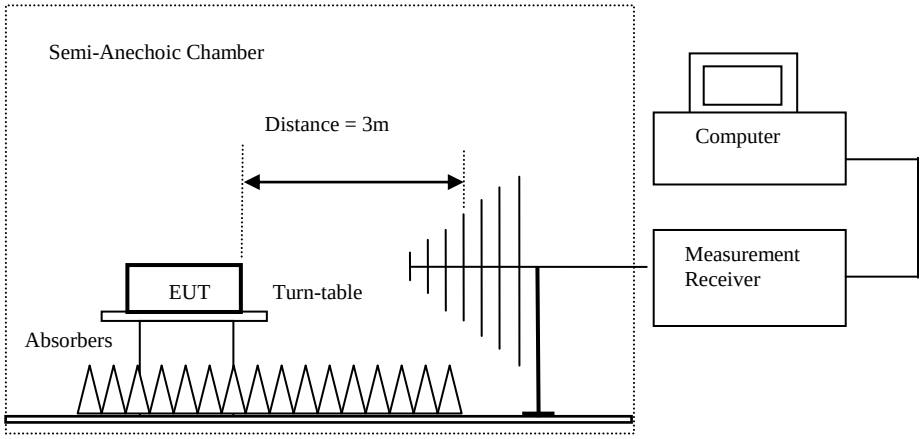
Test Requirement:	FCC 47CFR 15.249
Test Method:	ANSI C63.4:2009
Test Date:	2011-07-30
Mode of Operation:	SD Card mode (and communication with 2.4GHz controller) / LAN mode (and communication with 2.4GHz controller) / USB mode (and communication with 2.4GHz controller)

Test Method:

The sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. 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, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

* Semi-anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

Test Setup:



Ground Plane

Absorbers placed on top of the ground plane are for measurements above 1000MHz only.

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

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [microvolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928	50,000 [Average]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

Results of Tx mode: Pass

Field Strength of Fundamental Emissions
Peak Value

	Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
	2402.0	56.2	35.4	91.6	38,018.9	500,000	Vertical
	4804.0	10.9	41.5	52.4	416.9	5,000	Vertical
	7206.0	3.8	48.8	52.6	426.6	5,000	Vertical
*	12010.0					5,000	Vertical
	14412.0					5,000	Vertical
	16814.0					5,000	Vertical
*	19216.0					5,000	Vertical
	21618.0					5,000	Vertical
	24020.0	**No Emission Detected**				5,000	Vertical

Field Strength of Fundamental Emissions
Average Value

	Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
+	2402.0	36.2	35.4	71.6	3,801.9	50,000	Vertical
+	4804.0	-9.1	41.5	32.4	41.7	500	Vertical
+	7206.0	-16.2	48.8	32.6	42.7	500	Vertical

Remarks:
No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz
*: Denotes restricted band of operation.
Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

+: Adjusted by Duty Cycle = -38.9dB

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

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

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [microvolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928	50,000 [Average]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

Results of Tx mode: Pass

Field Strength of Fundamental Emissions
Peak Value

	Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
	2440.0	54.3	35.5	89.8	30,903.0	500,000	Vertical
	4880.0	12.5	41.4	53.9	495.5	5,000	Vertical
	7320.0	3.0	48.7	51.7	384.6	5,000	Vertical
	9760.0					5,000	Vertical
*	12200.0					5,000	Vertical
	14640.0					5,000	Vertical
	17080.0					5,000	Vertical
*	19520.0					5,000	Vertical
	21960.0	**No Emission Detected**				5,000	Vertical

Field Strength of Fundamental Emissions
Average Value

	Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
+	2440.0	34.3	35.5	69.8	3,090.3	50,000	Vertical
+	4880.0	-7.5	41.4	33.9	49.5	500	Vertical
+	7320.0	-17.0	48.7	31.7	38.5	500	Vertical

Remarks:
No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz
*: Denotes restricted band of operation.
Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.
+: Adjusted by Duty Cycle = -38.9dB

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

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

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [microvolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928	50,000 [Average]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

Results of Tx mode: Pass

Field Strength of Fundamental Emissions
Peak Value

	Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
	2480.0	55.5	35.8	91.3	36,728.2	500,000	Vertical
	4960.0	10.3	41.4	51.7	384.6	5,000	Vertical
	7440.0	2.9	48.6	51.5	375.8	5,000	Vertical
	9920.0					5,000	Vertical
*	12400.0					5,000	Vertical
	14880.0					5,000	Vertical
	17360.0					5,000	Vertical
*	19840.0					5,000	Vertical
	22320.0					5,000	Vertical
	24800.0	**No Emission Detected**				5,000	Vertical

Field Strength of Fundamental Emissions
Average Value

	Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
+	2480.0	35.5	35.8	71.3	3,672.8	50,000	Vertical
+	4960.0	-9.7	41.4	31.7	38.5	500	Vertical
+	7440.0	-17.1	48.6	31.5	37.6	500	Vertical

Remarks:
No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz
*: Denotes restricted band of operation.
Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.
+: Adjusted by Duty Cycle = -38.9dB

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Rx mode: PASS
Emissions detected are more than 20 dB below the FCC Limits

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

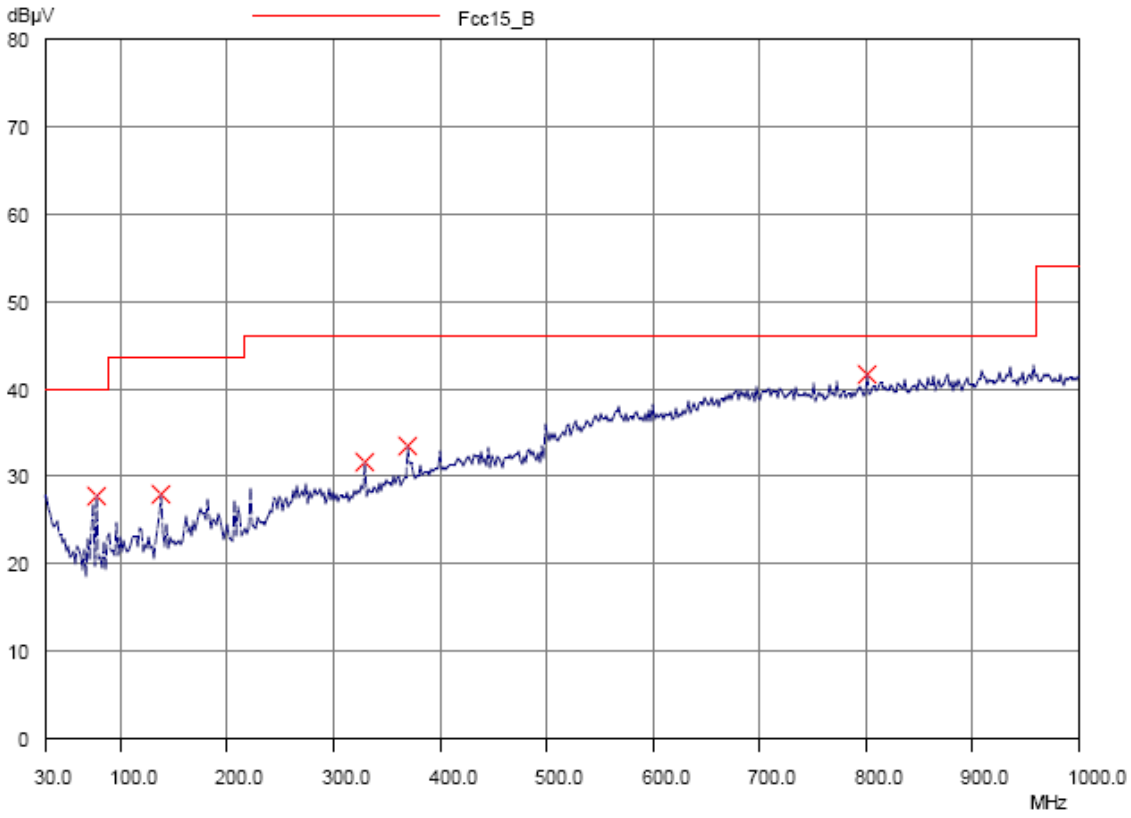
Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of SD Card mode (and communication with 2.4GHz controller) (9kHz-30MHz): PASS
Emissions detected are more than 20 dB below the FCC Limits

Results of SD Card mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS
Please refer to the following table for result details

Horizontal



Results of SD Card mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m	Limit @3m	Level @3m	Limit @3m
		dBµV/m	dBµV/m	µV/m	µV/
78.3	Horizontal	27.8	40.0	24.5	100
138.8	Horizontal	27.9	43.5	24.8	150
330.0	Horizontal	31.7	46.0	38.5	200
371.3	Horizontal	33.6	46.0	47.9	200
800.1	Horizontal	40.8	46.0	109.6	200

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB

1GHz to 18GHz 5.1dB

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

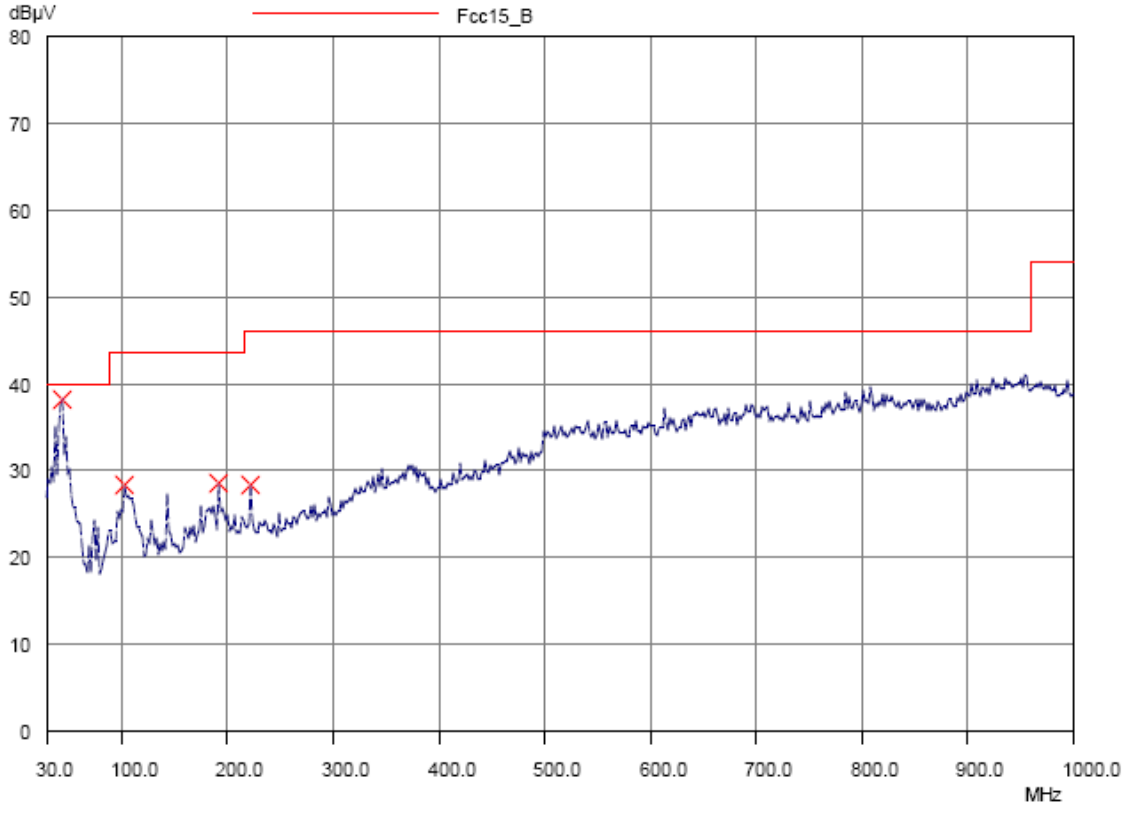
Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of SD Card mode (and communication with 2.4GHz controller) (9kHz-30MHz): PASS
Emissions detected are more than 20 dB below the FCC Limits

Results of SD Card mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS
Please refer to the following table for result details

Vertical



Results of SD Card mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dBµV/m	Limit @3m dBµV/m	Level @3m µV/m	Limit @3m µV/m
43.9	Vertical	35.4	40.0	58.9	100
102.3	Vertical	28.5	43.5	26.6	150
192.0	Vertical	28.6	43.5	26.9	150
222.8	Vertical	28.5	46.0	26.6	200

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

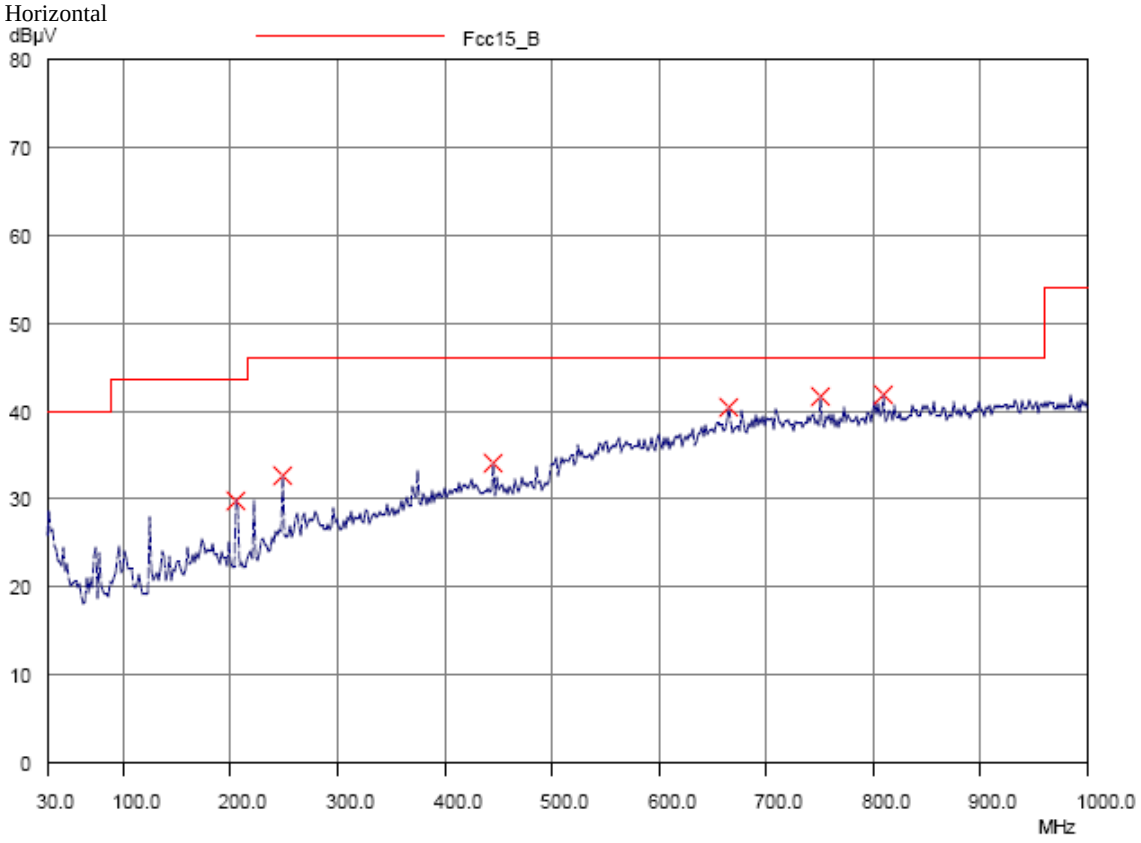
Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of LAN mode (and communication with 2.4GHz controller) (9kHz-30MHz): PASS
Emissions detected are more than 20 dB below the FCC Limits

Results of LAN mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS
Please refer to the following table for result details

Horizontal



Results of LAN mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dBµV/m	Limit @3m dBµV/m	Level @3m µV/m	Limit @3m µV/m
206.1	Horizontal	29.7	43.5	30.5	150
250.0	Horizontal	32.7	46.0	43.2	200
445.6	Horizontal	34.3	46.0	51.9	200
664.6	Horizontal	40.6	46.0	107.2	200
750.1	Horizontal	40.7	46.0	108.4	200
809.3	Horizontal	40.9	46.0	110.9	200

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

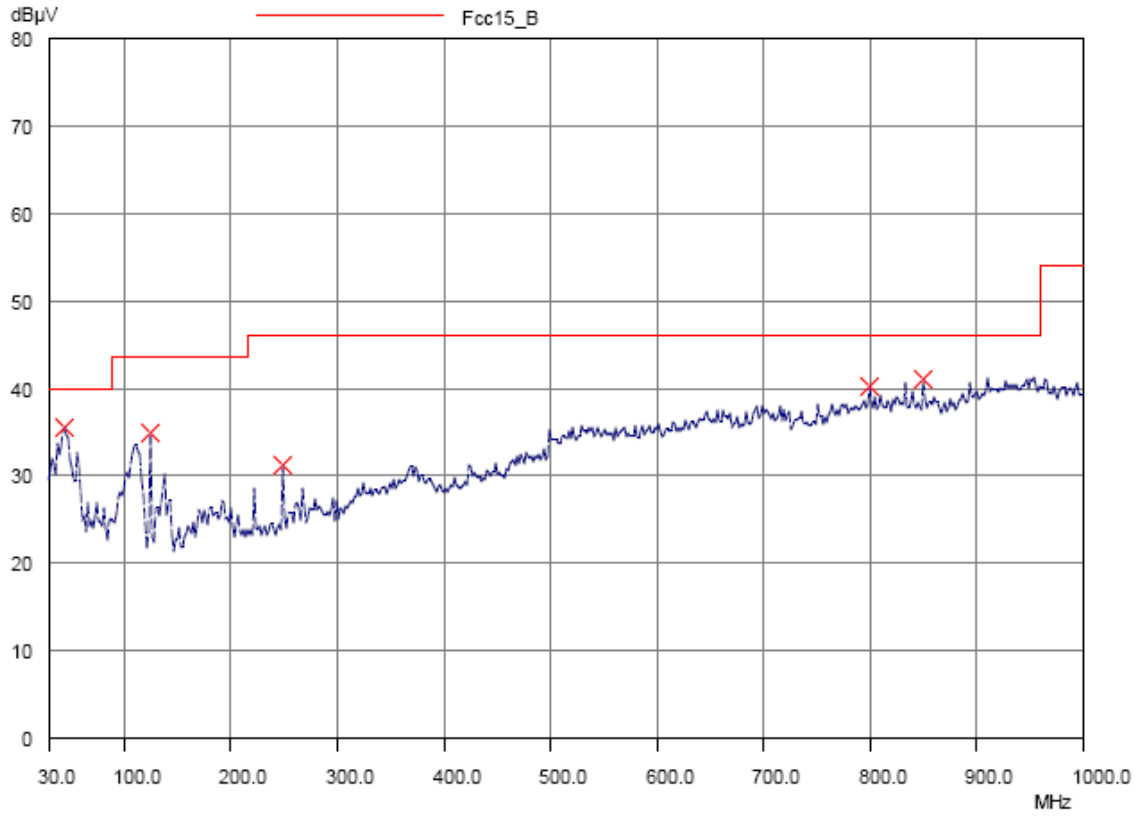
Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of LAN mode (and communication with 2.4GHz controller) (9kHz-30MHz): PASS
Emissions detected are more than 20 dB below the FCC Limits

Results of LAN mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS
Please refer to the following table for result details

Vertical



Results of LAN mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dBµV/m	Limit @3m dBµV/m	Level @3m µV/m	Limit @3m µV/m
43.9	Vertical	34.6	40.0	53.7	100
125.0	Vertical	35.0	43.5	56.2	150
250.0	Vertical	31.4	46.0	37.2	200
799.3	Vertical	40.4	46.0	104.7	200
850.0	Vertical	41.2	46.0	114.8	200

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

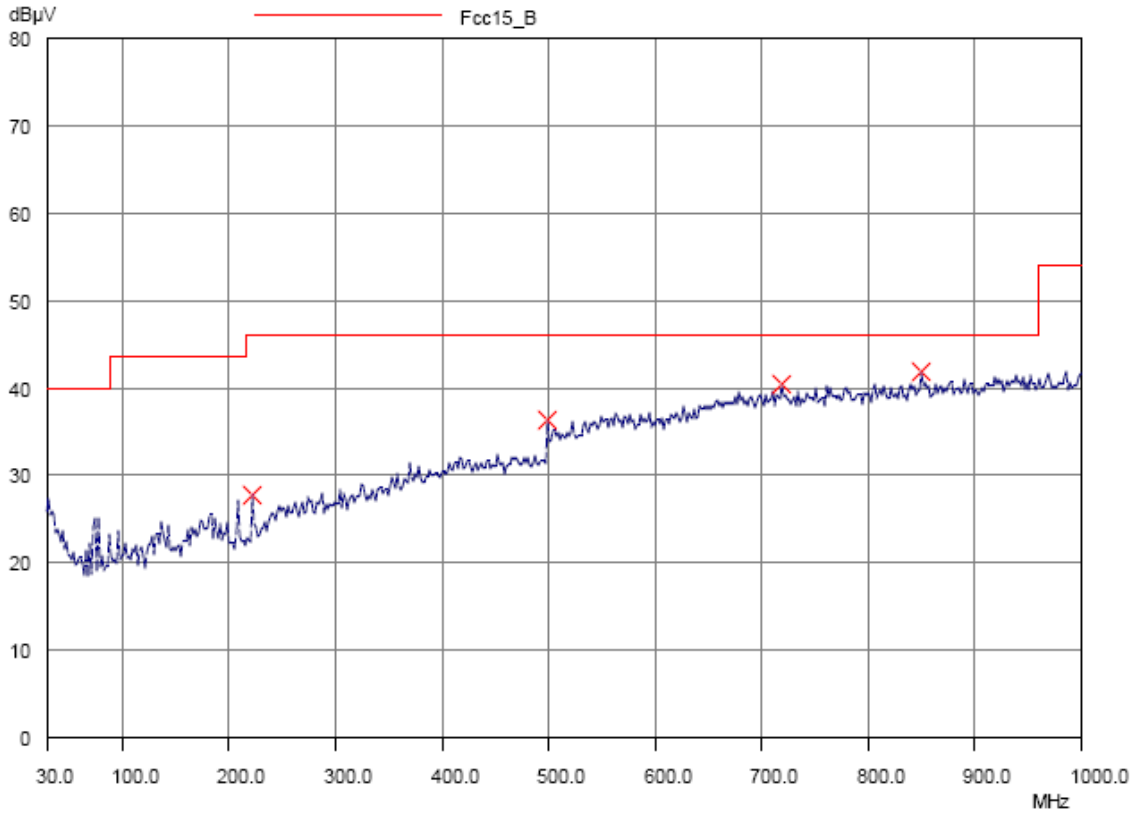
Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of USB mode (and communication with 2.4GHz controller) (9kHz-30MHz): PASS
Emissions detected are more than 20 dB below the FCC Limits

Results of USB mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS
Please refer to the following table for result details

Horizontal



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Results of USB mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dBµV/m	Limit @3m dBµV/m	Level @3m µV/m	Limit @3m µV/m
222.8	Horizontal	27.9	46.0	24.8	200
500.0	Horizontal	36.4	46.0	66.1	200
718.6	Horizontal	40.6	46.0	107.2	200
850.0	Horizontal	40.9	46.0	110.9	200

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

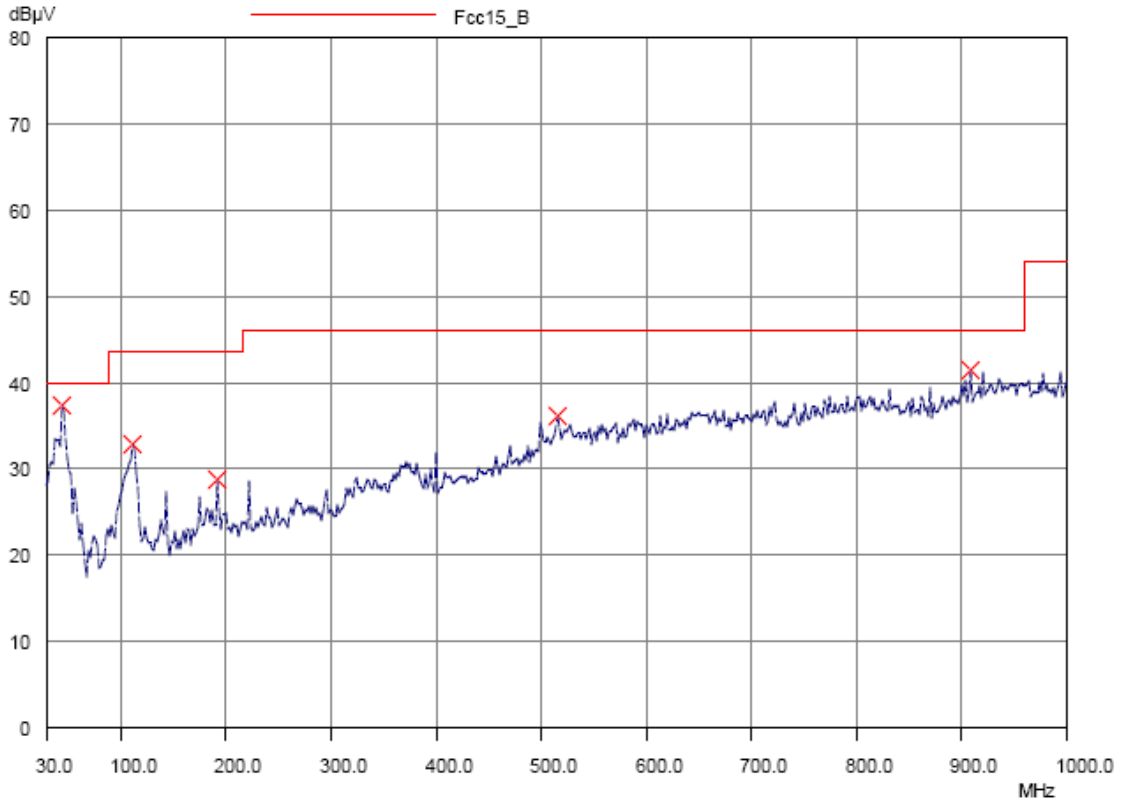
Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of USB mode (and communication with 2.4GHz controller) (9kHz-30MHz): PASS
Emissions detected are more than 20 dB below the FCC Limits

Results of USB mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS
Please refer to the following table for result details

Vertical



Results of USB mode (and communication with 2.4GHz controller) (30MHz-1000MHz): PASS

Radiated Emissions Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @3m dBµV/m	Limit @3m dBµV/m	Level @3m µV/m	Limit @3m µV/m
44.1	Vertical	34.4	40.0	52.5	100
112.3	Vertical	33.0	43.5	44.7	150
192.0	Vertical	28.9	43.5	27.9	150
515.5	Vertical	36.3	46.0	65.3	200
908.3	Vertical	41.5	46.0	118.9	200

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB

1GHz to 18GHz 5.1dB

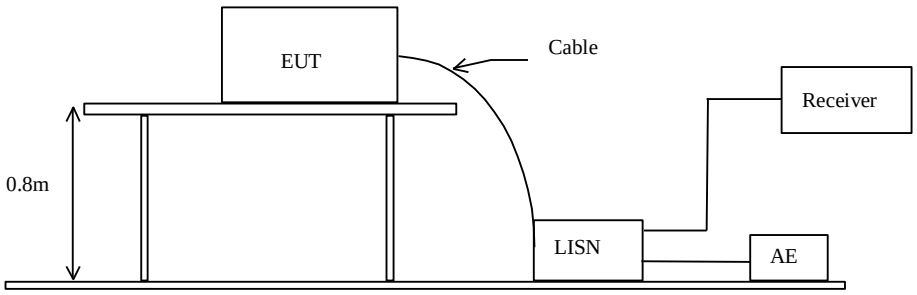
3.1.6 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement:	FCC 47CFR 15.207
Test Method:	ANSI C63.4:2009
Test Date:	2011-07-11
Mode of Operation:	SD Card mode (and communication with 2.4GHz controller) / LAN mode (and communication with 2.4GHz controller) / USB mode (and communication with 2.4GHz controller)

Test Method:

The test was performed in accordance with ANSI C63.4:2009, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line 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.

Test Setup:



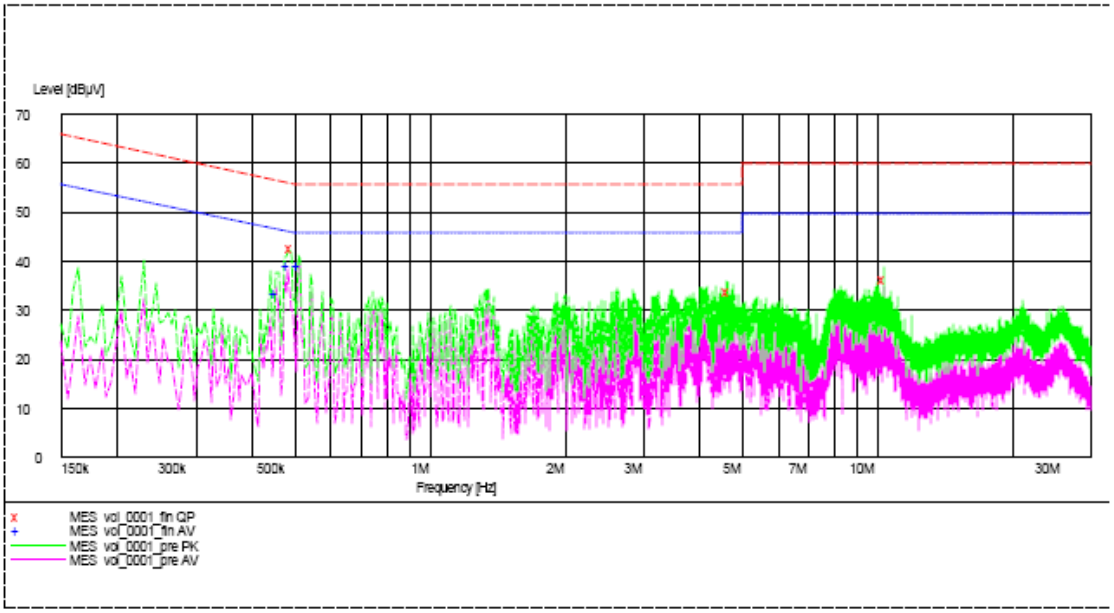
Limit for Conducted Emissions (FCC 47 CFR 15.207):

Frequency Range [MHz]	Quasi-Peak Limits [dBμV]	Average [dBμV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

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

Results of SD Card mode (and communication with 2.4GHz controller) (L): PASS
Please refer to the following diagram for individual results.



Remark:
Calculated measurement uncertainty : 3.97dB

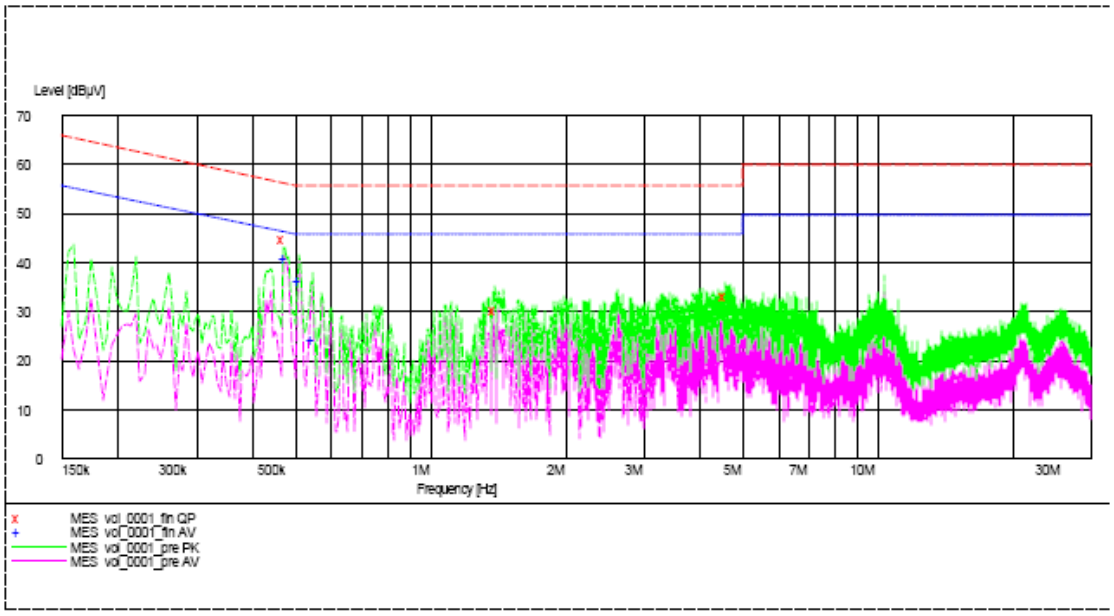
Limit for Conducted Emissions (FCC 47 CFR 15.207):

Frequency Range [MHz]	Quasi-Peak Limits [dBμV]	Average [dBμV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

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

Results of SD Card mode (and communication with 2.4GHz controller) (N): PASS
Please refer to the following diagram for individual results.



Remarks
Calculated measurement uncertainty : 3.97dB

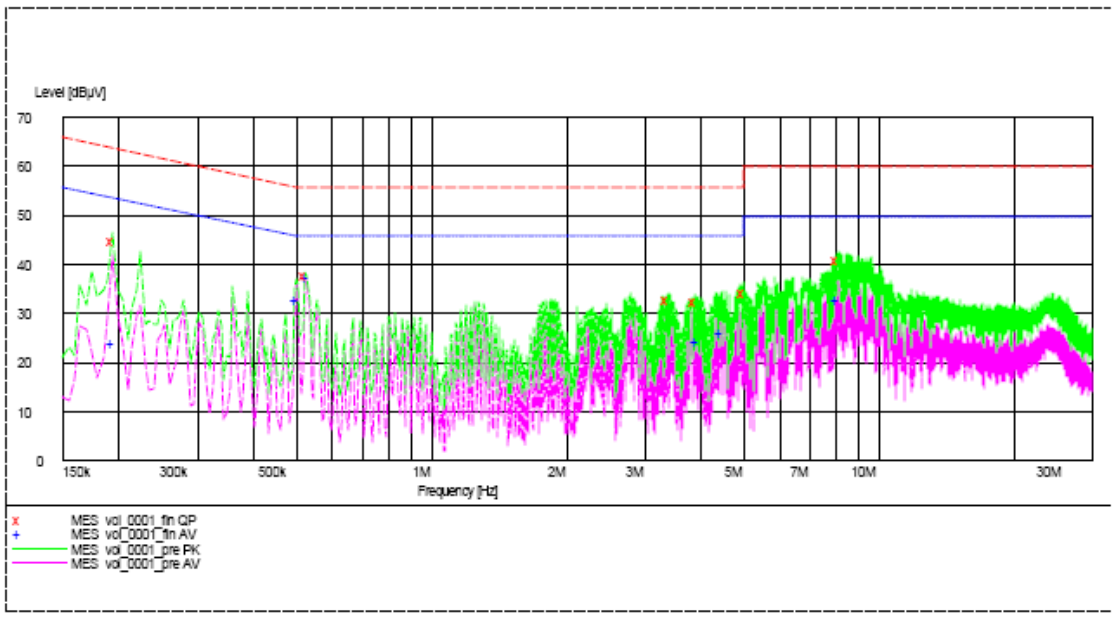
Limit for Conducted Emissions (FCC 47 CFR 15.207):

Frequency Range [MHz]	Quasi-Peak Limits [dBμV]	Average [dBμV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

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

Results of LAN mode (and communication with 2.4GHz controller) (L): PASS
Please refer to the following diagram for individual results.



Remark:
Calculated measurement uncertainty : 3.97dB

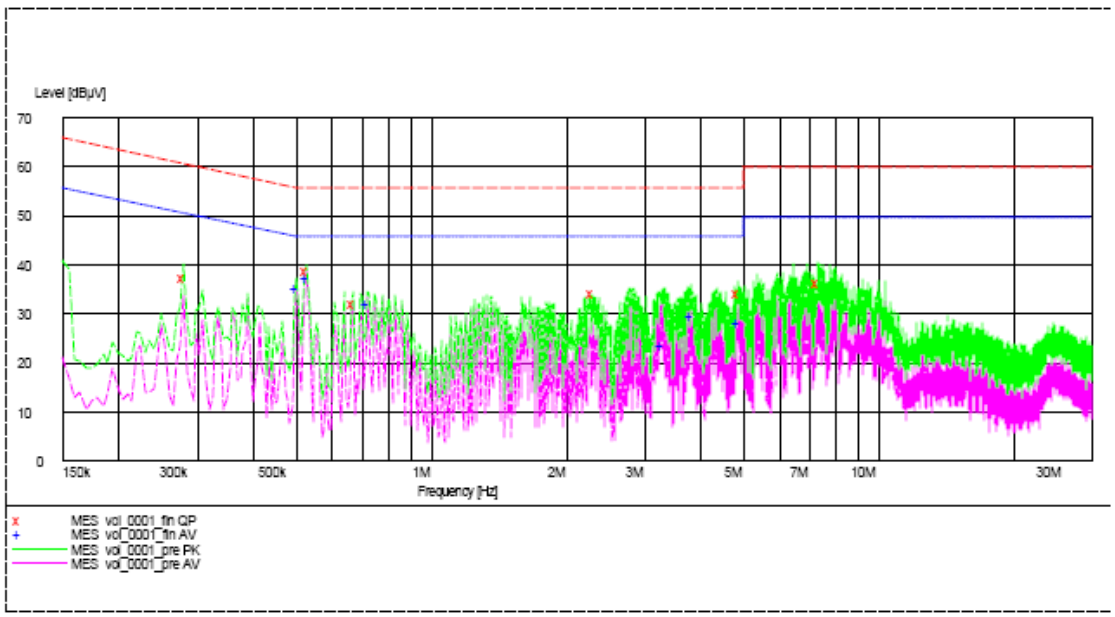
Limit for Conducted Emissions (FCC 47 CFR 15.207):

Frequency Range [MHz]	Quasi-Peak Limits [dBμV]	Average [dBμV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

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

Results of LAN mode (and communication with 2.4GHz controller) (N): PASS
Please refer to the following diagram for individual results.



Remarks
Calculated measurement uncertainty : 3.97dB

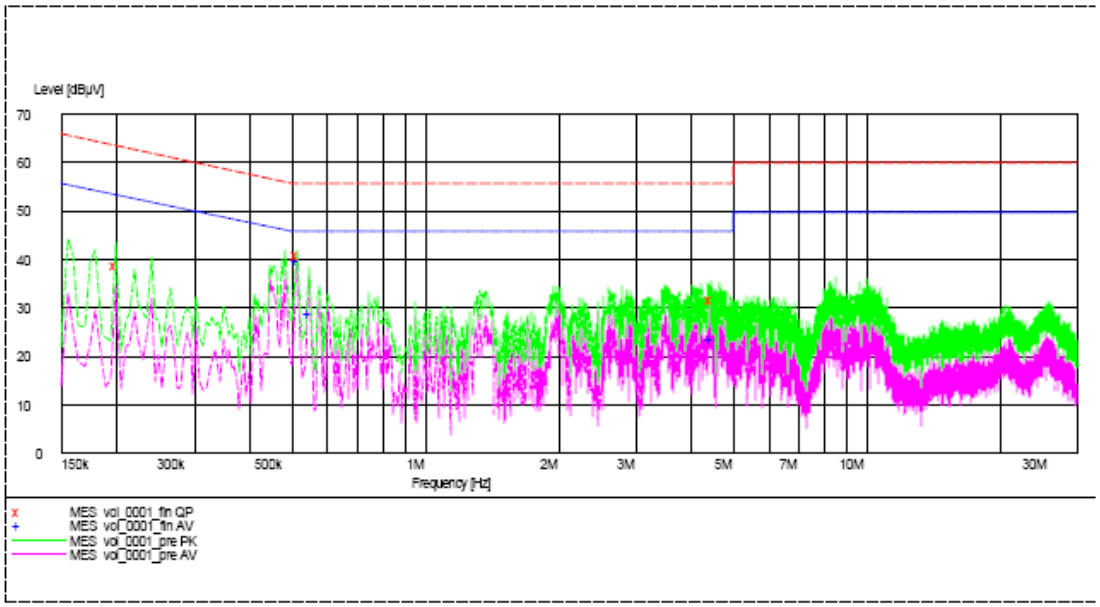
Limit for Conducted Emissions (FCC 47 CFR 15.207):

Frequency Range [MHz]	Quasi-Peak Limits [dBμV]	Average [dBμV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

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

Results of USB mode (and communication with 2.4GHz controller) (L): PASS
Please refer to the following diagram for individual results.



Remark:
Calculated measurement uncertainty : 3.97dB

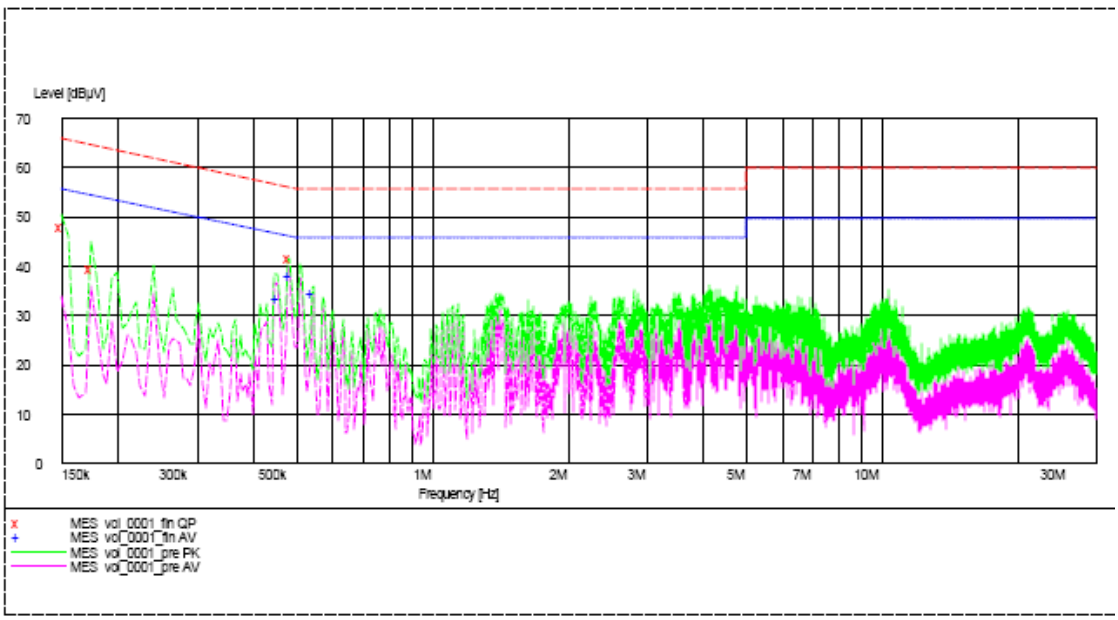
Limit for Conducted Emissions (FCC 47 CFR 15.207):

Frequency Range [MHz]	Quasi-Peak Limits [dBμV]	Average [dBμV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

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

Results of USB mode (and communication with 2.4GHz controller) (N): PASS
Please refer to the following diagram for individual results.

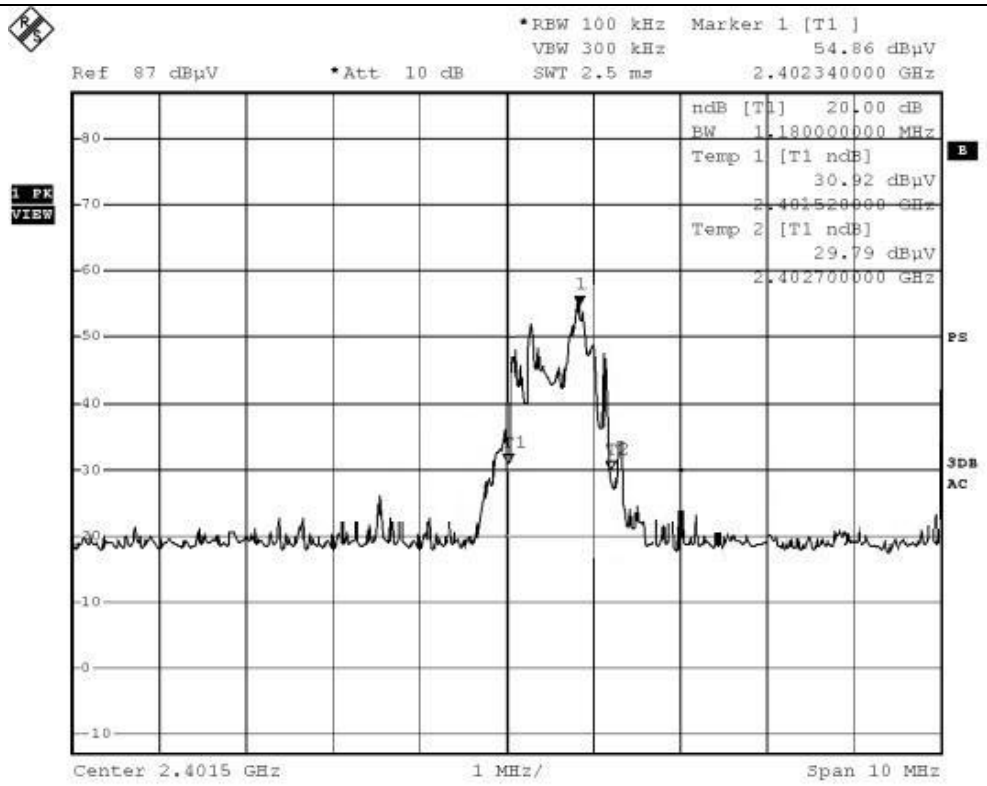


Remarks
Calculated measurement uncertainty : 3.97dB

Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [MHz]
2402	1.18

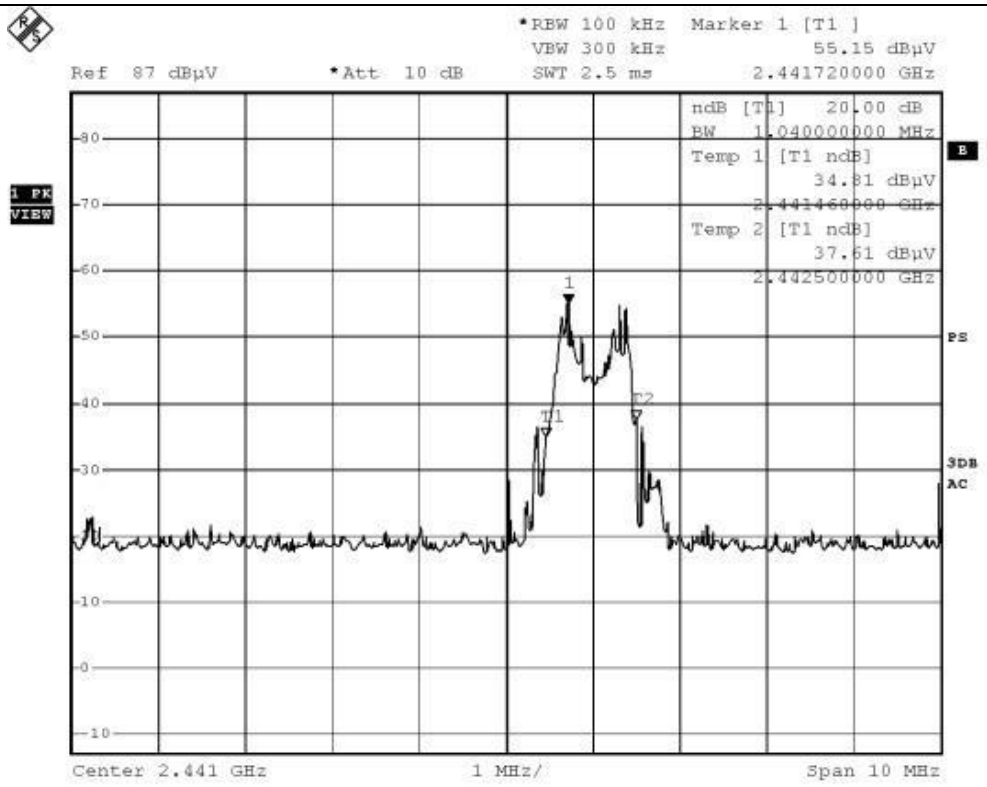
20dB Bandwidth of Fundamental Emission



Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [MHz]
2441	1.04

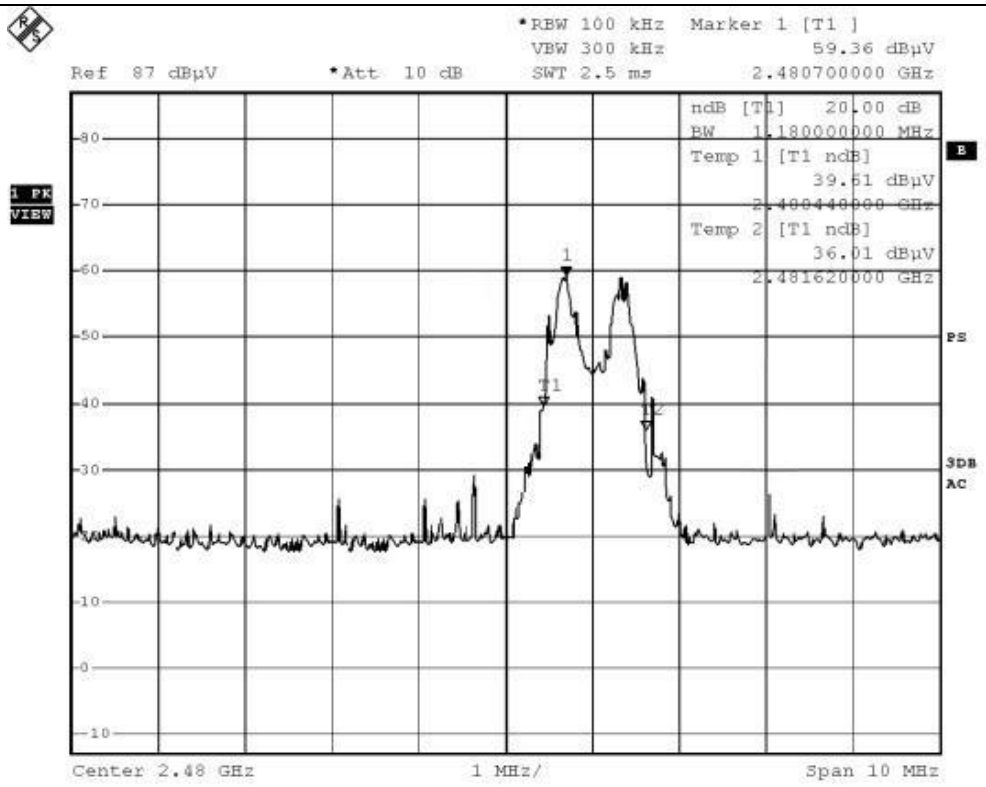
20dB Bandwidth of Fundamental Emission



Limits for 20dB Bandwidth of Fundamental Emission:

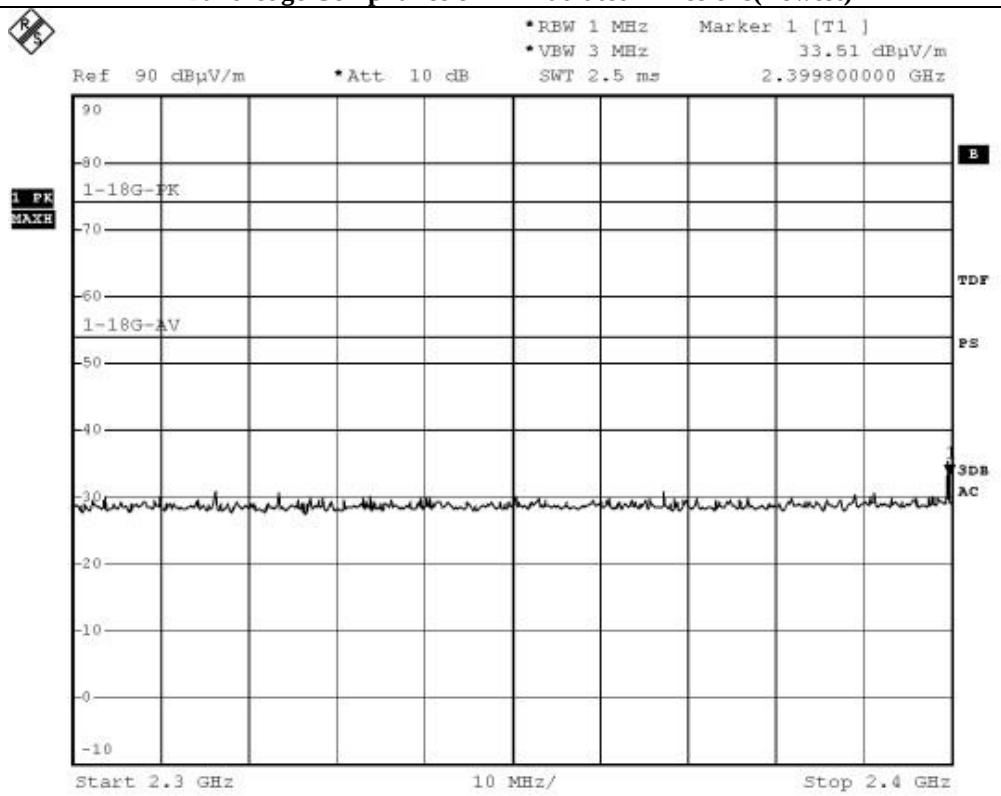
Frequency Range [MHz]	20dB Bandwidth [MHz]
2480	1.18

20dB Bandwidth of Fundamental Emission



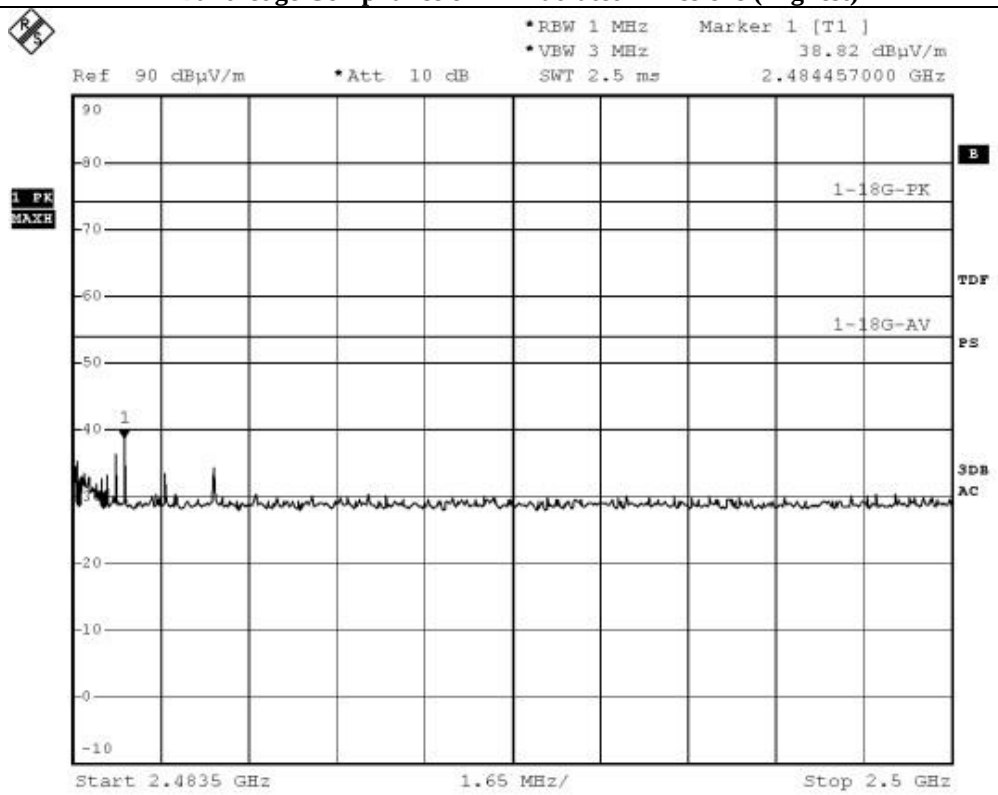
Band Edge Measurement:

Band-edge Compliance of RF Radiated Emissions(Lowest)



Band Edge Measurement:

Band-edge Compliance of RF Radiated Emissions (Highest)



Duty Cycle Correction During 100msec

Each sample unit sends a different series of characters, but each pulse period (100msec) never exceeds a series of 2 sole (0.57msec) pulses. Assuming any combination of sole pulses may be obtained due to encoding the worst case transmit duty cycle would be considered 2×0.57msec per 100msec=1.14% duty cycle. Figure A through B show the characteristics of the pulse train for one of these functions.

Remarks:

Duty Cycle Correction = 20Log (0.0114) =-38.9 dB
Duty Cycle Correction = -20dB, if the calculation duty cycle correction >-20dB.

The following figures [Figure A to Figure B] showed the characteristics of the pulse train for one of these functions.

Figure A [Pulse Train]

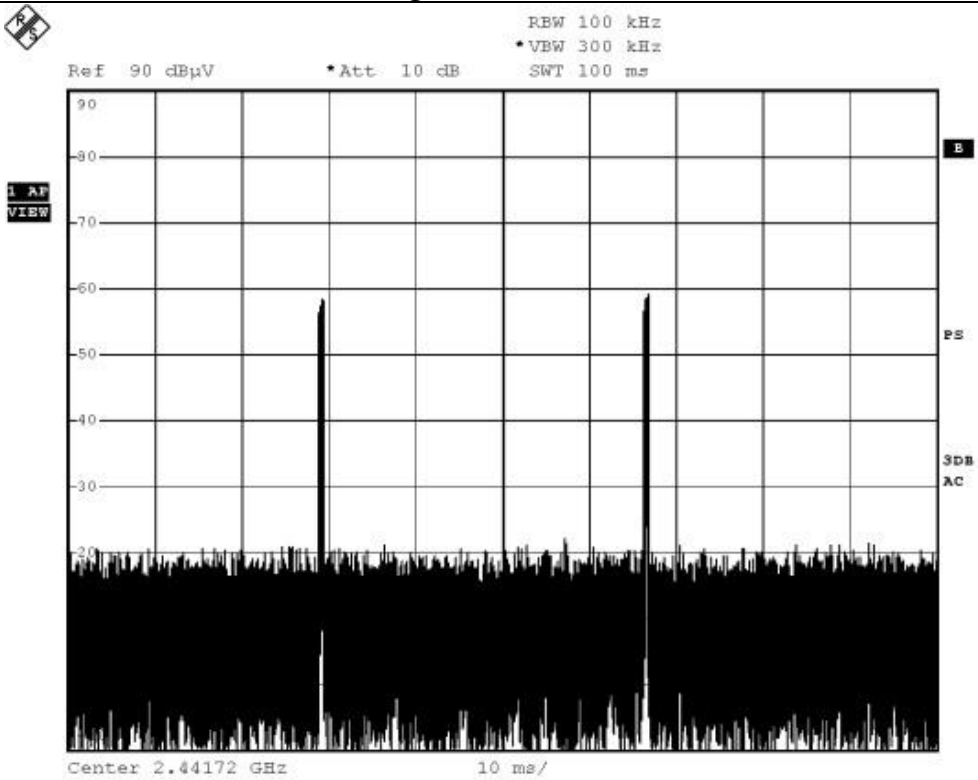
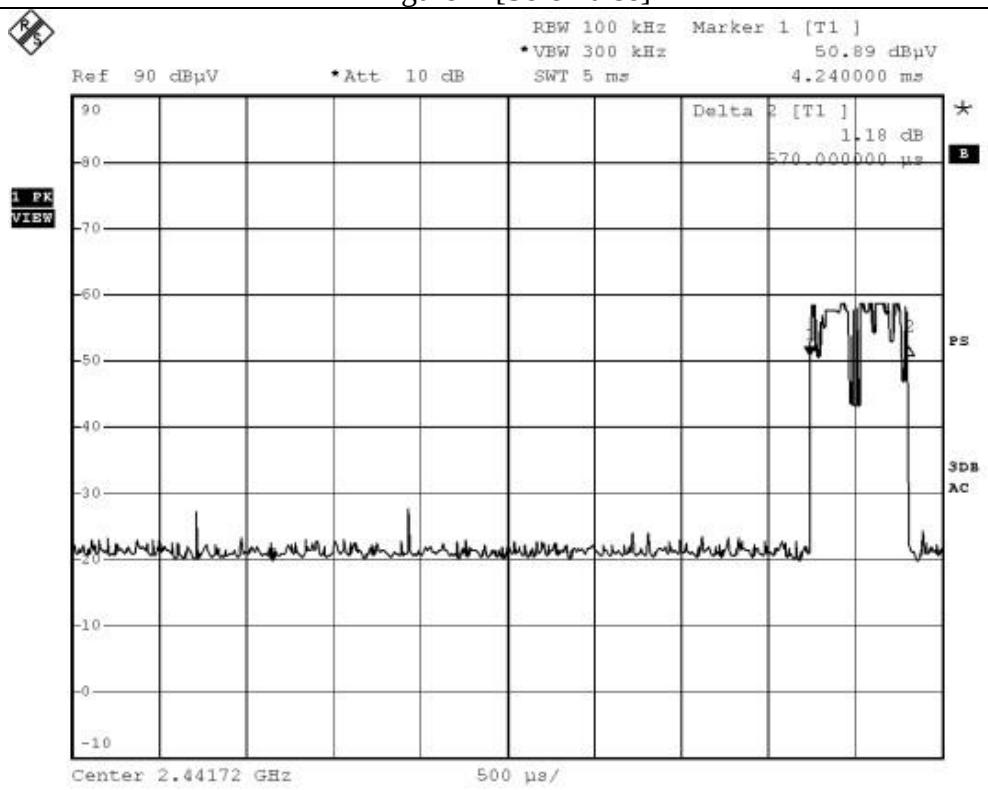


Figure B [Sole Pulse]



Antenna Requirement

Test Requirements: § 15.203

Test Specification:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Test Results:

The EUT has 2 Dipole Antenna which is connected to the reverse-polarity SMA connector on the PCB of the main unit, the antenna gain = 0.5dBi. All component install on inside of EUT. User unable to remove or changed the Antenna.

Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM020	HORN ANTENNA	EMCO	3115	4032	2009/09/02	2011/09/02
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3	--	2010/10/25	2011/11/25
EM174	BICONILOG ANTENNA	EMCO	3142B	1671	2010/02/09	2012/02/09
EM229	EMI Test Receiver	R&S	ESIB40	100248	2011/04/26	2012/04/26

Line Conducted

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM197	LISN	EMCO	4825/2	1193	2010/10/13	2011/10/13
EM181	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB7	100072	2011/04/26	2012/04/26
EM154	SHIELDING ROOM	SIEMENS MATSUSHITA COMPONENTS	N/A	803-740-057-99A	2011/01/23	2012/01/23

Remarks:-

CM Corrective Maintenance
N/A Not Applicable
TBD To Be Determined

Appendix B

Ancillary Equipment

ITEM NO.	DESCRIPTION	MODEL NO.	FCC ID	REMARK
1	LCD TV	LCD-1501	N/A	15" LCD TV
2	DELL KEYBOARD	SK-8110	N/A	1.8M SHIELDED COILED CABLE CONNECTED TO THE COMPUTER
3	DELL MOUSE	N/A	N/A	2.4M UNSHIELDED CABLE CONNECTED TO THE COMPUTER
4	SD CARD	N/A	N/A	2.0 GB SD MEMORY CARD
5	USB FLASH DRIVE	N/A	N/A	HIGH-SPEED USB 2.0 8GB FLASH DRIVE

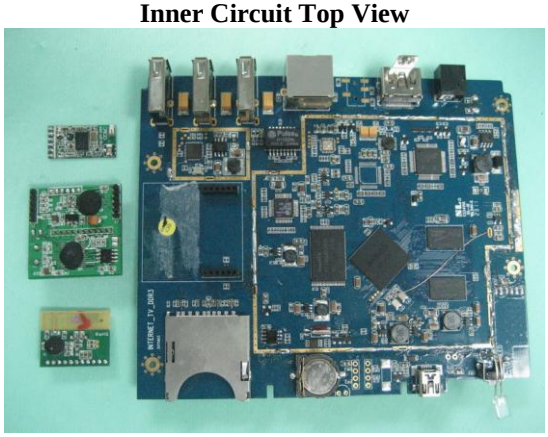
Appendix C

Photographs of EUT

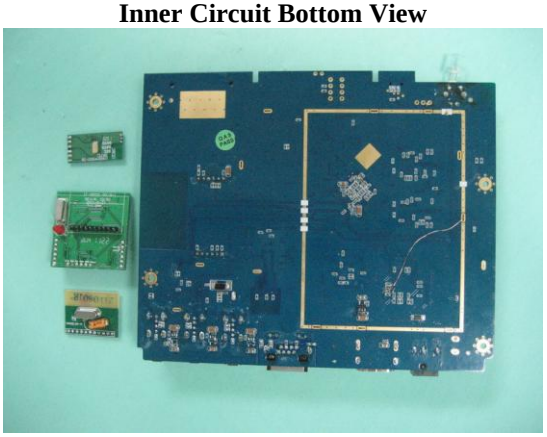
Front View of the product

Rear View of the product

Inner Circuit Top View

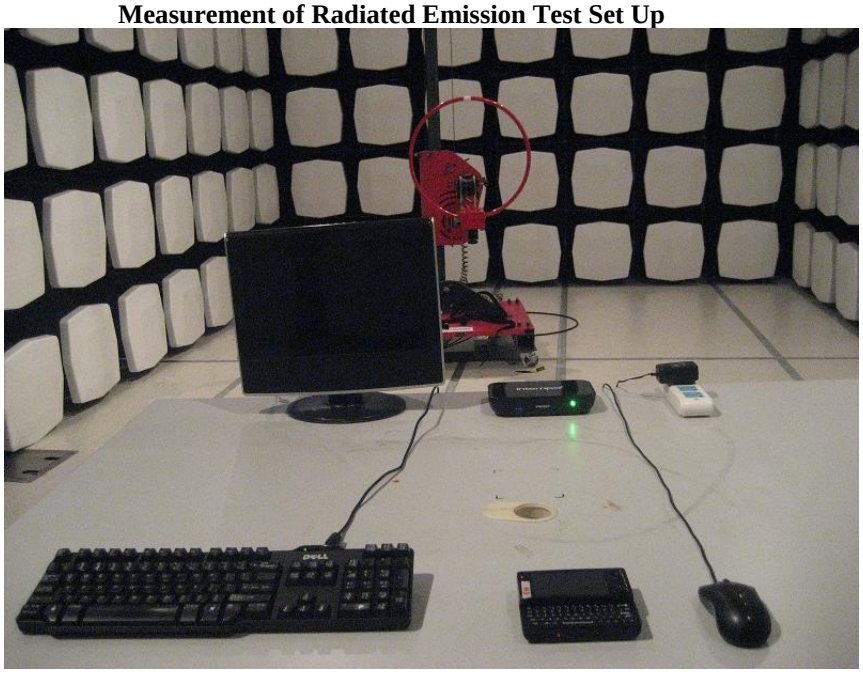


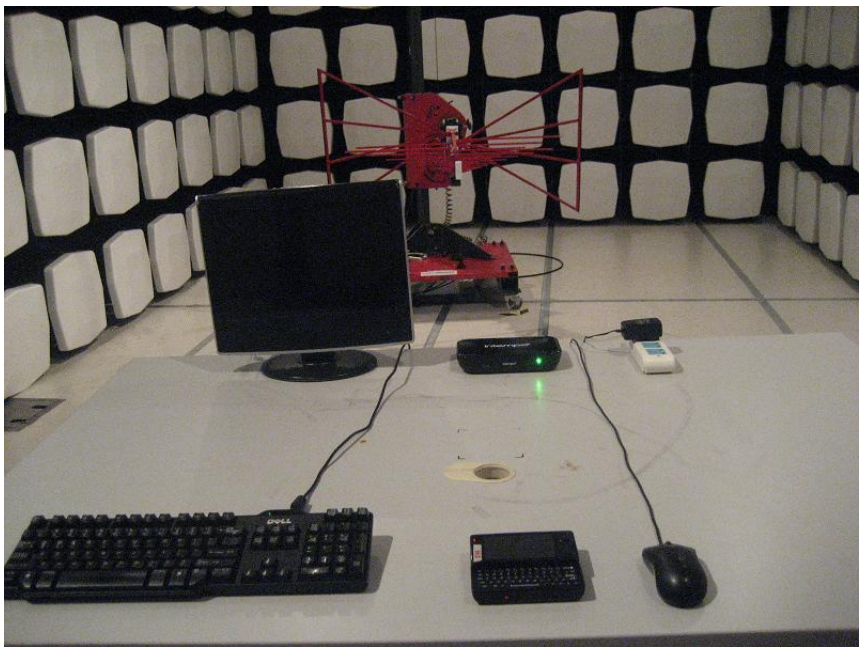
Inner Circuit Bottom View



Photographs of EUT

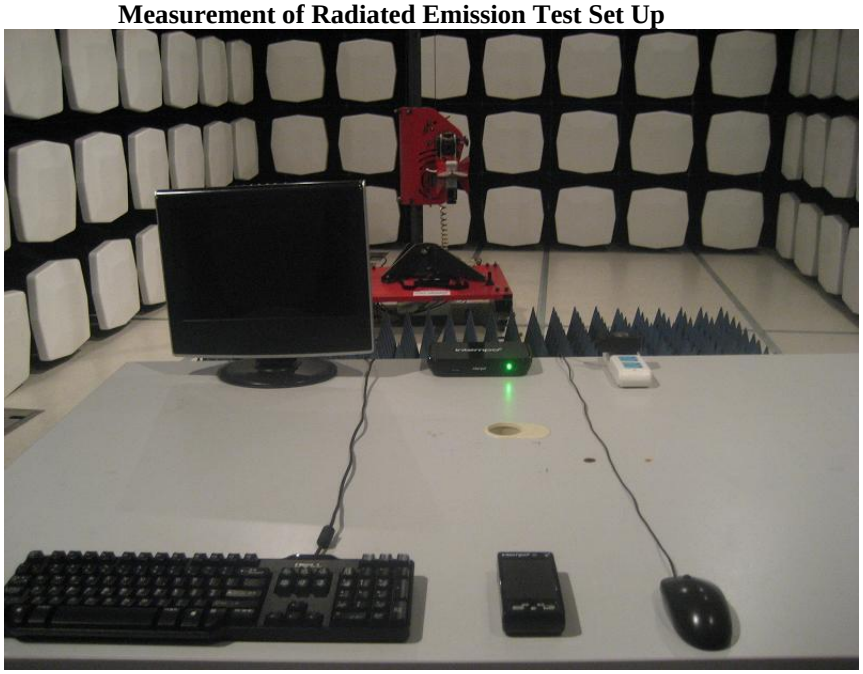
Measurement of Radiated Emission Test Set Up



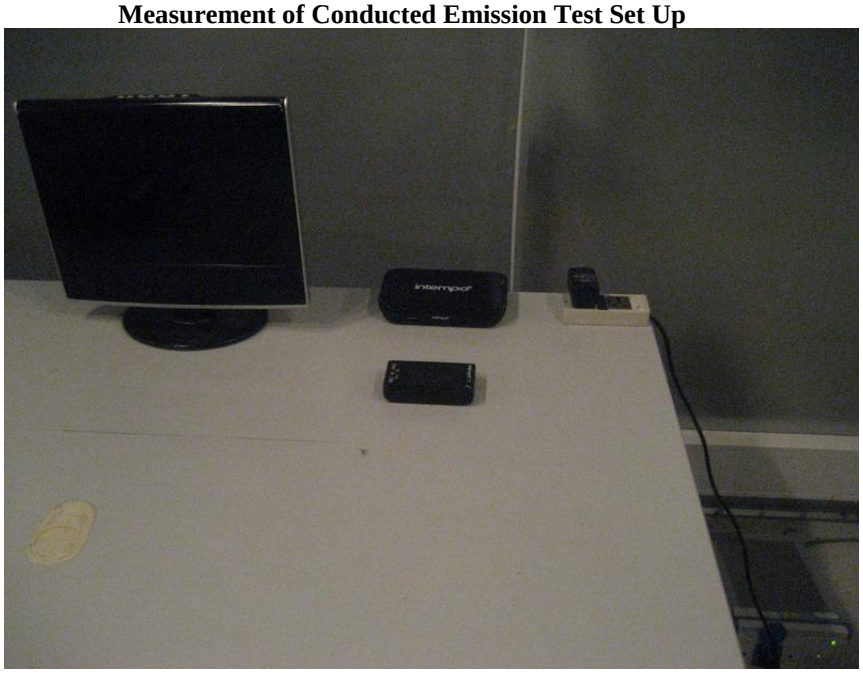


Photographs of EUT

Measurement of Radiated Emission Test Set Up



Measurement of Conducted Emission Test Set Up



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

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