

# TEST REPORT No. I17Z40067-EMC01

for

**TCL Communication Ltd.** 

# GSM Quad-band/HSPA-UMTS Six-band/LTE 13-band mobile phone

Model Name: BBB100-2

with

**Hardware Version: 05** 

**Software Version: AAJ048** 

Issued Date: 2017-03-15

#### Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

#### **Test Laboratory:**

FCC 2.948 Listed: No.525429

CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT

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# **REPORT HISTORY**

Report Number	Revision	Description	Issue Date
I17Z40067-EMC01	Rev.0	1 <sup>st</sup> edition	2017-03-15



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# 1. Test Laboratory

# 1.1. Testing Location

**CTTL(huayuan North Road)** 

Address: No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China

100191

1.2. <u>Testing Environment</u>

Normal Temperature:  $15-35^{\circ}$ C Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2017-01-16
Testing End Date: 2017-01-23

1.4. Signature

张 颖

**Zhang Ying** 

(Prepared this test report)

屈鹏飞

Qu Pengfei

(Reviewed this test report)

Liu Baodian

(Approved this test report)



# 2. Client Information

# 2.1. Applicant Information

Company Name: TCL Communication Ltd

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# 2.2. Manufacturer Information

Company Name: TCL Communication Ltd

Address /Post: 5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,

Pudong Area Shanghai, P.R. China. 201203

City: Shanghai
Postal Code: 201203
Country: P. R. China

Telephone: 0086-21-31363544 Fax: 0086-21-61460602



# 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

# 3.1. About EUT

Description GSM Quad-band/HSPA-UMTS Six-band/LTE 13-band mobile

phone

Model Name BBB100-2 FCC ID 2ACCJN018

Extreme vol. Limits 3.6VDC to 4.35VDC (nominal: 3.8VDC)

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT.

# 3.2. Internal Identification of EUT used during the test

 EUT ID\*
 SN or IMEI
 HW Version
 SW Version

 EUT4
 004402243183369
 05
 AAJ048

### 3.3. Internal Identification of AE used during the test

AE ID*	Description	SN	Remarks
AE1	battery	/	/
AE2	battery	/	/
AE3	Travel charger	/	16TCT-CH-1886
AE4	Travel charger	/	16TCT-CH-1872
AE5	Travel charger	/	16TCT-CH-0005
AE6	USB Cable	/	/
AE7	USB Cable	/	/
AE10	Travel charger	1	/
AE11	Travel charger	/	/
AE1			
Model		BAT-63108-003	
SN		CAC3440001C3	
Manufact	urer	ATL	
Capacita	nce	3440 mAh	
Nominal	voltage	3.85V	
AE2			
Model		TLp034E1	
SN		CAC3440003C1	
Manufact	urer	BYD	
Capacita	nce	3440 mAh	
Nominal	voltage	3.85V	

<sup>\*</sup>EUT ID: is used to identify the test sample in the lab internally.



AE3

Name CBA0060AGHC1

Model QC10US
Manufacturer BYD
Length of cable /

AE4

Name CBA0060ACHC1

Model QC10AU
Manufacturer BYD
Length of cable /

AE5

Name CBA0060AJHC1

Model QC10IN
Manufacturer BYD
Length of cable /

AE6

Model CDA0000105CF

Manufacturer LUXSHARE

Length of cable 99cm

AE7

Model CDA0000108C2
Manufacturer SHENGHUA

Length of cable 99cm

AE10

Name CBA0060AAHC1

Model QC10EU
Manufacturer BYD
Length of cable /

AE11

Name CBA0060ABHC1

Model QC10UK
Manufacturer BYD
Length of cable /

\*AE ID: is used to identify the test sample in the lab internally.

Note: The USB cables are shielded.



# 3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.5	EUT4 + AE1 + AE3 + AE6	Charger
Set.6	EUT4 + AE1 + AE4 + AE6	Charger
Set.7	EUT4 + AE1 + AE5 + AE6	Charger
Set.8	EUT4 + AE1 + AE6	USB
Set.9	EUT4 + AE1 + AE7	USB

The GSM Quad-band/HSPA-UMTS Six-band/LTE 13-band mobile phone BBB100-2 manufactured by TCL Communication Ltd. is a variant model based on BBB100-1 for conformance test. According to the declaration of changes, the results are inherited from the initial model. The report number of initial model is I16Z42454-EMC01.

# 4. Reference Documents

# 4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices - Unintentional Radiators	10-1-15
		Edition
ANSI C63.4	Methods of Measurement of Radio-Noise	2014
	Emissions from Low - Voltage Electrical and	
	Electronic Equipment in the Range of 9 kHz to 40	
	GHz	



# 5. LABORATORY ENVIRONMENT

**Semi-anechoic chamber SAC-1** (23 meters $\times$ 17meters $\times$ 10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB;
	1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 10 m distance
Site voltage standing-wave ratio (S <sub>VSWR</sub> )	Between 0 and 6 dB, from 1GHz to 6GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

**Shielded room** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz, >60dB;
	1MHz-1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	<4 Ω



# 6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:		
	Р	Pass
Verdict Column	NA	Not applicable
	F	Fail

Items	Test Name	Clause in FCC rules	Clause in IC rules	Section in this report	Verdict	Test Location
1	Radiated Emission	15.109(a)	Section 5	B.1	Р	huayuan North Road
2	Conducted Emission	15.107(a)	Section 5	B.2	Р	huayuan North Road



# 7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTUR E	CAL DUE DATE	CALIBRATI ON INTERVAL
1	Test Receiver	ESCI	100344	R&S	2017-03-01	1 year
2	Universal Radio Communication Tester	CMW500	116455	R&S	2017-12-01	1 year
3	LISN	ENV216	101200	R&S	2017-07-10	1 year
4	EMI Antenna	VULB 9163	9163-301	Schwarzbeck	2017-12-16	3 years
5	EMI Antenna	3115	6914	ETS-Lindgren	2017-12-15	3 years
6	Test Receiver	ESCI7	100948	R&S	2017-07-05	1 year
7	PC	OPTIPLEX 380	2X1YV2X	DELL	N/A	N/A
8	Printer	P1606dn	VNC3L52122	HP	N/A	N/A
9	Keyboard	L100	CN0RH6596589 07ATOI40	DELL	N/A	N/A
10	Mouse	M-UAE119	LZ935220ZRC	Lenovo	N/A	N/A



# **ANNEX A: MEASUREMENT RESULTS**

#### A.1 Radiated Emission

Reference

FCC: CFR Part 15.109(a).

#### A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (USB mode of MS and charging mode of MS) at distances of 10 meters(for 30MHz-1GHz) and 3 meters (for above 1GHz) is tested. Tested in accordance with the procedures of ANSI C63.4 – 2014, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3/10 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

#### A.1.2 EUT Operating Mode:

The MS is operating in the USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL OPTIPLEX 380, and the serial number of the PC is 2X1YV2X. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

Note: I/O information: Printer – USB, Mouse – PS/2, Keyboard – USB.

#### A.1.3 Measurement Limit

Frequency range	Field strength limit (µV/m)				
(MHz)	Quasi-peak	Peak			
30-88	100				
88-216	150				
216-960	200				
960-1000	500				
>1000		500	5000		

Note: the above limit is for 3 meters test distance. 10 meters' limit is got by converting.

#### **A.1.4 Test Condition**

Frequency range (MHz)	RBW/VBW	Sweep Time (s)	Detector
30-1000	120kHz (IF Bandwidth)	5	Peak/Quasi-peak
Above 1000	1MHz/1MHz	15	Peak, Average



#### A.1.5 Measurement Results

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

Result =  $P_{Mea} + A_{Rpl} = P_{Mea} + G_A + G_{PL}$ 

Where

G<sub>A</sub>: Antenna factor of receive antenna

G<sub>PL</sub>: Path Loss

P<sub>Mea</sub>: Measurement result on receiver.

Measurement uncertainty (worst case): U = 5.26dB, k=2.

#### Measurement results for Set.5:

#### **Charging Mode/Average detector**

Frequency(MHz)	Result(dB <sub>μ</sub> V/m)	$(m)$ $G_{PL}$ $(dB)$ $G_A$ $(dB/n)$		P <sub>Mea</sub> (dBµV)	Polarity
17894.033	50.4	-18.5	45.6	23.300	Н
17925.767	50.3	-17.7	45.6	22.400	V
17915.567	50.3	-17.7	45.6	22.400	V
17878.733	50.3	-18.5	45.6	23.200	Н
17951.833	50.3	-17.7	45.6	22.400	V
17932.567	50.3	-17.7	45.6	22.400	Н

#### **Charging Mode/Peak detector**

Frequency(MHz)	$ency(MHz) \mid Result(dB\muV/m) \mid G_PL\left(dB\right) \mid G_A$		G <sub>A</sub> (dB/m)	$P_{Mea}(dB\mu V)$	Polarity	
17984.700	.700 61.6 -17.7 45.6		45.6	33.700	Н	
17847.000	61.5	-18.5	45.6	34.400	V	
17901.967	61.5	-18.5	45.6	34.400	V	
17881.000	61.4	-18.5	45.6	34.300	Н	
17988.100	17988.100 61.3		45.6	33.400	Н	
17928.033	61.3	-17.7	45.6	33.400	Н	



# Measurement results for Set.6:

# **Charging Mode/Average detector**

Frequency(MHz)	Result(dB <sub>μ</sub> V/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>Mea</sub> (dBµV)	Polarity
17881.000	50.3	-18.5 45.6		23.200	V
17871.933	50.3	-18.5	45.6	23.200	Н
17899.700	50.3	-18.5 45.6 23.200		23.200	V
17905.933	50.2	-18.5	45.6	23.100	Н
17901.400	50.2	-18.5	45.6	23.100	Н
17877.033	50.2	-18.5	45.6	23.100	V

# **Charging Mode/Peak detector**

Frequency(MHz)	Result(dB <sub>μ</sub> V/m)	G <sub>PL</sub> (dB)	G <sub>PL</sub> (dB) G <sub>A</sub> (dB/m)		Polarity
17960.900	62.5	-17.7 45.6		34.600	Н
17921.800	62.2	-17.7	45.6	34.300	Н
17913.867	62.1	-18.5 45.6		35.000	V
17926.900	61.9	-17.7	45.6	34.000	Н
17929.733	61.8	-17.7	45.6	33.900	V
17992.633	61.6	-17.7	45.6	33.700	Н

# **Measurement results for Set.7:**

# **Charging Mode/Average detector**

Frequency(MHz)	Result(dB <sub>μ</sub> V/m)	$_{1}V/m)$ $G_{PL}$ (dB) $G_{A}$ (dB/m		P <sub>Mea</sub> (dBµV)	Polarity
17908.200	50.5	-18.5 45.6		23.400	V
17879.300	50.5	-18.5	45.6	23.400	Н
17888.367	50.5	-18.5	45.6	23.400	V
17927.467	50.4	-17.7	45.6	22.500	Н
17921.233	50.3	-17.7	45.6	22.400	V
17973.367	50.2	-17.7	45.6	22.300	Н

# **Charging Mode/Peak detector**

Frequency(MHz)	Result(dB <sub>μ</sub> V/m)	$(dB\mu V/m)$ $G_{PL}$ $(dB)$ $G_A$ $(dB/m)$		P <sub>Mea</sub> (dBµV)	Polarity
17866.267	62.7	-18.5 45.6		35.600	Н
17994.333	61.9	-17.7	45.6	34.000	Н
17877.600	61.8	-18.5	45.6	34.700	V
17969.400	61.7	-17.7	45.6	33.800	Н
17934.267	61.4	-17.7	45.6	33.500	V
17773.900	61.3	-18.5	45.6	34.200	V



#### Measurement results for Set.8:

# **USB Mode/Average detector**

Frequency(MHz)	Result(dBµV/m)	$G_{PL}$ (dB) $G_A$ (dB/m)		$P_{mea}(dB\mu V)$	Polarity	
17911.600	50.5	-18.5	45.6	23.400	Н	
17921.233	50.4	-17.7	45.6	22.500	Н	
17909.900	50.3	-18.5	45.6	23.200	V	
17955.800	50.3	-17.7	45.6	22.400	V	
17925.200	50.2	-17.7	45.6	22.300	Н	
17951.267	50.2	-17.7	45.6	22.300	V	

#### **USB Mode/ Peak detector**

Frequency(MHz)	Result(dBµV/m)	G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>mea</sub> (dBµV)	Polarity
17967.700	62.5	-17.7 45.6		34.600	Н
17948.433	62.2	-17.7	45.6	34.500	Н
17986.400	62.0	-17.7	45.6	33.900	V
17951.833	61.8	-18.5	8.5 45.6 34.600		Н
17930.300	61.6	-18.5	45.6	34.400	V
17938.233	61.6	-17.7	45.6	33.500	Н

#### Measurement results for Set.9:

#### **USB Mode/Average detector**

Frequency(MHz) Result(dBµV/m)		G <sub>PL</sub> (dB)	G <sub>A</sub> (dB/m)	P <sub>mea</sub> (dBµV)	Polarity	
17911.600	37.2	-18.5	45.6	10.100	Н	
17873.067	36.9	-18.5	45.6	9.800	Н	
17889.500	36.8	-18.5	45.6	9.700	V	
17899.133	9.133 36.7 -1		45.6	9.600	Н	
17920.667	17920.667 36.7		45.6	8.800	Н	
17918.967	36.7	-17.7	45.6	8.800	Н	

#### **USB Mode/ Peak detector**

Frequency(MHz)	Result(dBµV/m)	$uV/m$ ) $G_{PL}$ (dB) $G_A$ (dB/m)		$P_{mea}(dB\mu V)$	Polarity	
17921.800	48.4	-17.7 45.6		20.500	Н	
17930.300	48.0	-17.7	45.6	20.100	Н	
17855.500	47.9	-18.5	45.6	20.800	V	
17984.700	47.9	-17.7	45.6	20.000	Н	
17869.100	47.6	-18.5	45.6	20.500	Н	
17995.467	47.5	-17.7	45.6	19.600	Н	

Note: The measurement results of Set.5, Set.6, Set.7, Set.8 and Set.9 showed here are worst cases of the combinations of different batteries and USB cables.



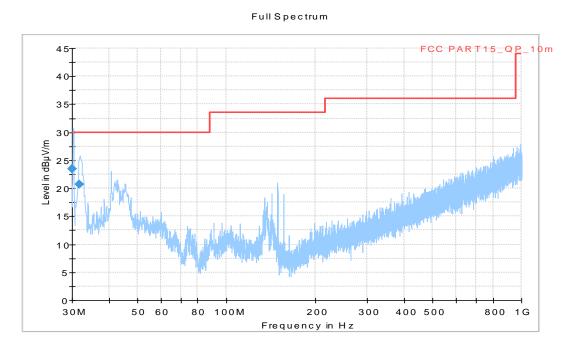


Figure A.1 Radiated Emission from 30MHz to 1GHz

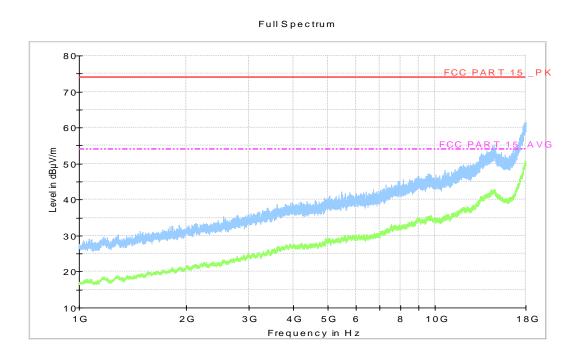


Figure A.2 Radiated Emission from 1GHz to 18GHz



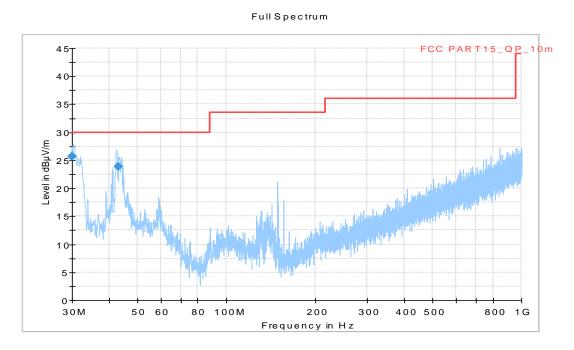


Figure A.3 Radiated Emission from 30MHz to 1GHz

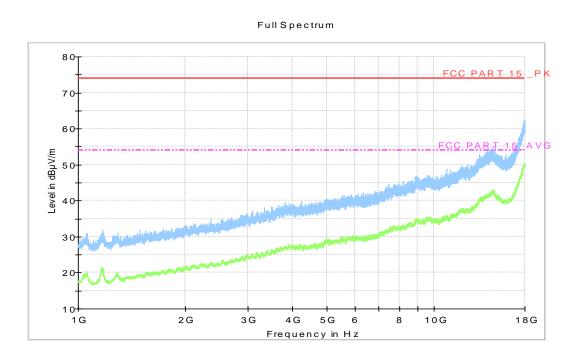


Figure A.4 Radiated Emission from 1GHz to 18GHz



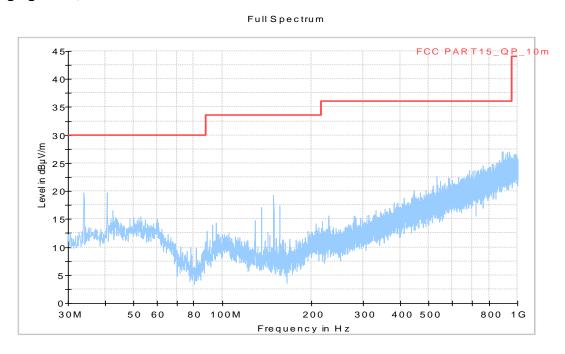


Figure A.5 Radiated Emission from 30MHz to 1GHz

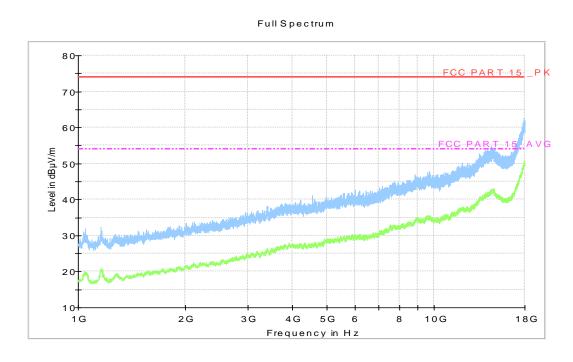


Figure A.6 Radiated Emission from 1GHz to 18GHz



# **USB Mode, Set.8**

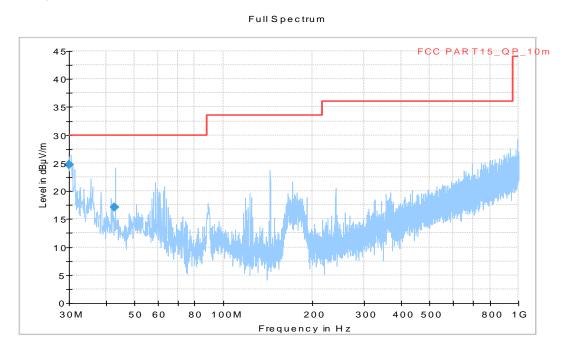


Figure A.7 Radiated Emission from 30MHz to 1GHz

# **Final Result 1**

Frequency	QuasiPeak	Limit	Margin	Meas.	Bandwidth	Height	Pol	Azimuth
(MHz)	(dB 礦/m)	(dB 礦/m)	(dB)	Time	(kHz)	(cm)		(deg)
30.000000	24.64	30.00	5.36	1000.0	120.000	190.0	V	98.0
42.795000	17.14	30.00	12.86	1000.0	120.000	225.0	V	30.0



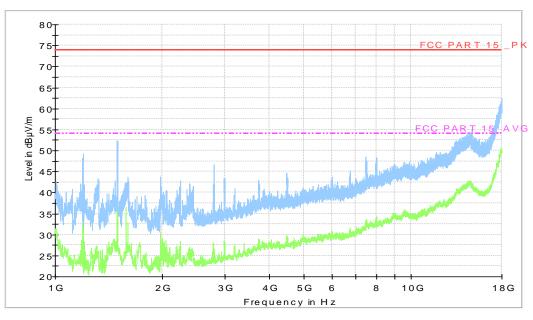


Figure A.8 Radiated Emission from 1GHz to 18GHz



# **USB Mode, Set.9**

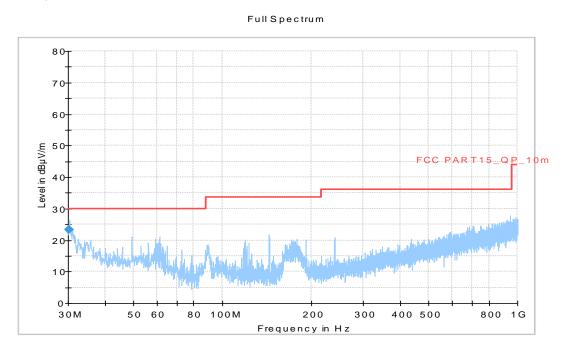


Figure A.9 Radiated Emission from 30MHz to 1GHz

# **Final Result 1**

Frequency	QuasiPeak	Limit	Margin	Meas.	Bandwidth	Height	Pol	Azimuth
(MHz)	(dB 礦/m)	(dB 礦/m)	(dB)	Time	(kHz)	(cm)		(deg)
30.240000	23.24	30.00	6.76	1000.0	120.000	197.0	V	60.0

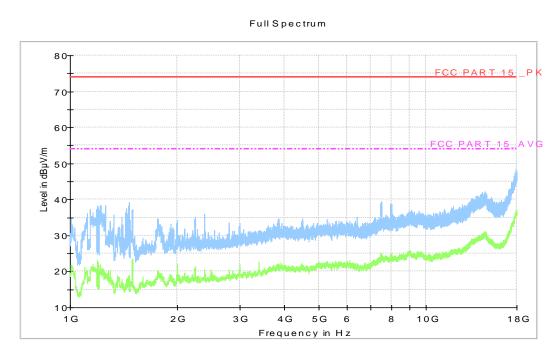


Figure A.10 Radiated Emission from 1GHz to 18GHz



# A.2 Conducted Emission

#### Reference

FCC: CFR Part 15.107(a).

#### A.2.1 Method of measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 – 2014, section 7.3.

#### A.2.2 EUT Operating Mode

The MS is operating in the USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL OPTIPLEX 380, and the serial number of the PC is 2X1YV2X. The software is used to let the PC keep on copying data to MS, reading and erasing the data after copy action was finished.

Note: I/O information: Printer – USB, Mouse – PS/2, Keyboard – USB.

#### A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted	limit (dBμV)					
	Quasi-peak	Average					
0.15-0.5	66 to 56*	56 to 46*					
0.5-5	56	46					
5-30	60	50					
*Decreases with the logarithm of the frequency							

# A.2.4 Test Condition in charging mode

Voltage (V)	Frequency (Hz)
120	60

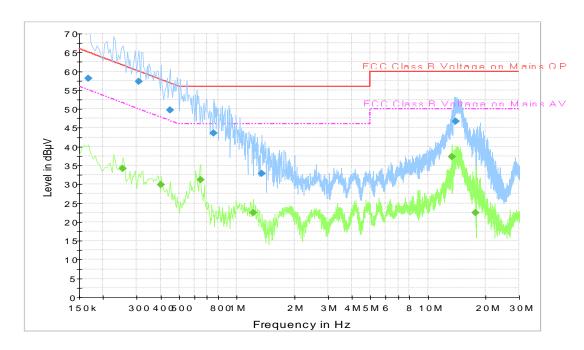
RBW/IF bandwidth	Sweep Time(s)					
9kHz	1					



#### A.2.5 Measurement Results

Measurement uncertainty: U= 3.38dB, k=2.

# **Charging Mode, Set.5**



**Figure A.11 Conducted Emission** 

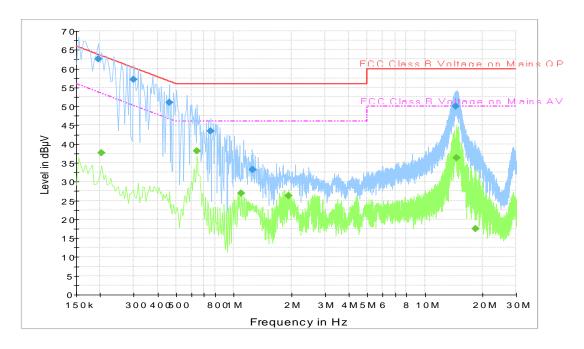
#### **Final Result 1**

Frequency	QuasiPeak	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
0.168000	58.1	2000.0	9.000	On	L1	19.9	6.9	65.1
0.307500	57.2	2000.0	9.000	On	N	19.8	2.8	60.0
0.447000	49.8	2000.0	9.000	On	N	19.9	7.2	56.9
0.757500	43.6	2000.0	9.000	On	L1	19.8	12.4	56.0
1.356000	32.9	2000.0	9.000	On	L1	19.7	23.1	56.0
13.969500	46.6	2000.0	9.000	On	N	19.8	13.4	60.0

#### Final Result 2

Frequency	CAverage	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
0.253500	34.1	2000.0	9.000	On	L1	19.8	17.5	51.6
0.402000	29.8	2000.0	9.000	On	L1	19.9	18.0	47.8
0.645000	31.2	2000.0	9.000	On	N	19.8	14.8	46.0
1.216500	22.4	2000.0	9.000	On	L1	19.7	23.6	46.0
13.375500	37.4	2000.0	9.000	On	N	19.8	12.6	50.0
17.839500	22.5	2000.0	9.000	On	L1	19.9	27.5	50.0





**Figure A.12 Conducted Emission** 

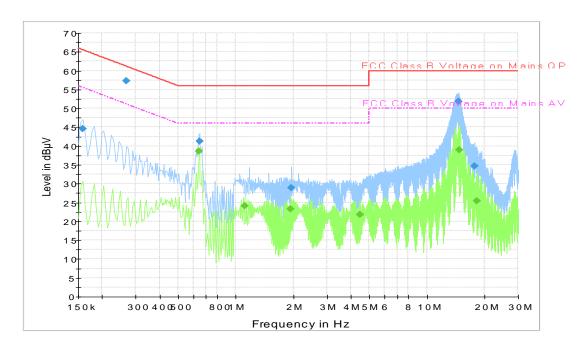
# **Final Result 1**

Frequency	QuasiPeak	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
0.195000	62.6	2000.0	9.000	On	N	19.8	1.2	63.8
0.298500	57.1	2000.0	9.000	On	N	19.8	3.1	60.3
0.460500	51.0	2000.0	9.000	On	N	19.9	5.7	56.7
0.757500	43.4	2000.0	9.000	On	N	19.8	12.6	56.0
1.261500	33.3	2000.0	9.000	On	N	19.7	22.7	56.0
14.509500	49.9	2000.0	9.000	On	N	19.8	10.1	60.0

#### Final Result 2

Frequency	CAverage	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
0.204000	37.7	2000.0	9.000	On	N	19.8	15.7	53.4
0.640500	38.2	2000.0	9.000	On	N	19.8	7.8	46.0
1.090500	26.9	2000.0	9.000	On	N	19.7	19.1	46.0
1.936500	26.3	2000.0	9.000	On	N	19.7	19.7	46.0
14.649000	36.3	2000.0	9.000	On	L1	19.8	13.7	50.0
18.343500	17.4	2000.0	9.000	On	L1	19.9	32.6	50.0





**Figure A.14 Conducted Emission** 

# **Final Result 1**

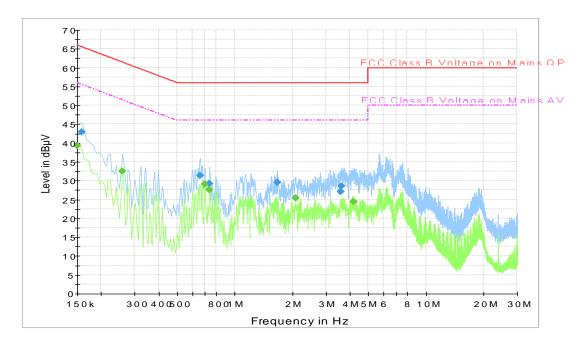
Frequency	QuasiPeak	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
0.159000	44.6	2000.0	9.000	Local	L1	19.9	20.9	65.5
0.267000	57.2	2000.0	9.000	Local	N	19.8	4.0	61.2
0.645000	41.3	2000.0	9.000	Local	L1	19.8	14.7	56.0
1.959000	28.9	2000.0	9.000	Local	L1	19.7	27.1	56.0
14.586000	51.8	2000.0	9.000	Local	N	19.8	8.2	60.0
17.808000	34.6	2000.0	9.000	Local	N	19.9	25.4	60.0

#### Final Result 2

Frequency	CAverage	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
0.640500	38.6	2000.0	9.000	Local	L1	19.8	7.4	46.0
1.113000	24.0	2000.0	9.000	Local	N	19.7	22.0	46.0
1.936500	23.3	2000.0	9.000	Local	N	19.7	22.7	46.0
4.465500	21.8	2000.0	9.000	Local	L1	19.6	24.2	46.0
14.725500	38.9	2000.0	9.000	Local	L1	19.8	11.1	50.0
18.213000	25.5	2000.0	9.000	Local	L1	19.9	24.5	50.0



# **USB Mode, Set.8**



**Figure A.15 Conducted Emission** 

# **Final Result 1**

Frequency	QuasiPeak	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
0.159000	43.0	2000.0	9.000	On	L1	19.9	22.5	65.5
0.658500	31.4	2000.0	9.000	On	L1	19.8	24.6	56.0
0.739500	29.3	2000.0	9.000	On	N	19.8	26.7	56.0
1.666500	29.6	2000.0	9.000	On	N	19.7	26.4	56.0
3.588000	27.0	2000.0	9.000	On	L1	19.5	29.0	56.0
3.628500	28.6	2000.0	9.000	On	L1	19.5	27.4	56.0

#### Final Result 2

Frequency	CAverage	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
0.150000	39.3	2000.0	9.000	On	L1	20.2	16.7	56.0
0.258000	32.6	2000.0	9.000	On	N	19.8	18.9	51.5
0.699000	29.1	2000.0	9.000	On	N	19.8	16.9	46.0
0.739500	27.6	2000.0	9.000	On	L1	19.8	18.4	46.0
2.080500	25.5	2000.0	9.000	On	N	19.7	20.5	46.0
4.177500	24.4	2000.0	9.000	On	L1	19.6	21.6	46.0



# **USB Mode, Set.9**

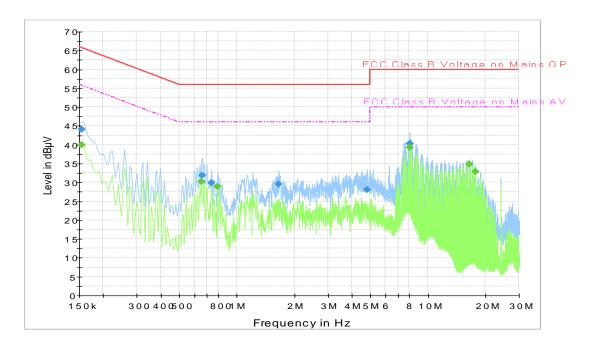


Figure A.15 Conducted Emission

#### **Final Result 1**

Frequency	QuasiPeak	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	$(dB\mu V)$	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
0.154500	44.1	2000.0	9.000	On	N	20.0	21.7	65.8
0.658500	31.8	2000.0	9.000	On	L1	19.8	24.2	56.0
0.739500	29.9	2000.0	9.000	On	L1	19.8	26.1	56.0
1.662000	29.6	2000.0	9.000	On	N	19.7	26.4	56.0
4.794000	28.0	2000.0	9.000	On	L1	19.6	28.0	56.0
8.025000	40.4	2000.0	9.000	On	N	19.7	19.6	60.0

#### Final Result 2

CAverage	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
$(dB\mu V)$	Time(ms)	(kHz)			(dB)	(dB)	(dBµV)
39.9	2000.0	9.000	On	N	20.0	15.8	55.8
30.1	2000.0	9.000	On	L1	19.8	15.9	46.0
28.9	2000.0	9.000	On	N	19.8	17.1	46.0
39.3	2000.0	9.000	On	N	19.7	10.7	50.0
34.8	2000.0	9.000	On	L1	19.8	15.2	50.0
32.9	2000.0	9.000	On	N	19.9	17.1	50.0
	(dBµV) 39.9 30.1 28.9 39.3 34.8	(dBμV)     Time(ms)       39.9     2000.0       30.1     2000.0       28.9     2000.0       39.3     2000.0       34.8     2000.0	(dBμV)     Time(ms)     (kHz)       39.9     2000.0     9.000       30.1     2000.0     9.000       28.9     2000.0     9.000       39.3     2000.0     9.000       34.8     2000.0     9.000	(dBμV)     Time(ms)     (kHz)       39.9     2000.0     9.000     On       30.1     2000.0     9.000     On       28.9     2000.0     9.000     On       39.3     2000.0     9.000     On       34.8     2000.0     9.000     On	(dBμV)     Time(ms)     (kHz)       39.9     2000.0     9.000     On     N       30.1     2000.0     9.000     On     L1       28.9     2000.0     9.000     On     N       39.3     2000.0     9.000     On     N       34.8     2000.0     9.000     On     L1	(dBμV)     Time(ms)     (kHz)     (dB)       39.9     2000.0     9.000     On     N     20.0       30.1     2000.0     9.000     On     L1     19.8       28.9     2000.0     9.000     On     N     19.8       39.3     2000.0     9.000     On     N     19.7       34.8     2000.0     9.000     On     L1     19.8	(dBμV)     Time(ms)     (kHz)     (dB)     (dB)       39.9     2000.0     9.000     On N 20.0     15.8       30.1     2000.0     9.000     On L1 19.8     15.9       28.9     2000.0     9.000     On N 19.8     17.1       39.3     2000.0     9.000     On N 19.7     10.7       34.8     2000.0     9.000     On L1 19.8     15.2

Note: The measurement results showed here are worst cases of the combinations of different batteries and USB cables.

# \*\*\*END OF REPORT\*\*\*