TEST REPORT

DT&C Co., Ltd.
42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042
Tel : 031-321-2664, Fax : 031-321-1664

1. Report No. : DREFCC1808-0258
2. Client / Applicant
   - Name : LG Electronics USA, Inc.
   - Address : 1000 Sylvan Ave. Englewood Cliffs NJ 07632 United States
3. Use of Report : Grant of Certification
4. Product Name / Model Name : Mobile Phone / LM-V409V
5. Test Standard : ANSI C 63.4 : 2014
   FCC Part 15 Subpart B
   (Class B personal computers and peripherals)
6. Date of Test : Aug. 11. 2018
7. Testing Environment : Temperature (21 ~ 23) °C , Humidity (54 ~ 56) % R.H.
8. Test Result : Refer to the attached Test Result

Affirmation	Tested by Name : YongKi Kim (Signature)	Reviewed by Name : HyungJun Kim (Signature)

The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose.
This test report shall not be reproduced except in full, without the written approval of DT&C Co., Ltd.

Aug. 16. 2018

DT&C Co., Ltd.

If this report is required to confirmation of authenticity, please contact to report@dtnc.net

CONTENTS

1. General Remarks

This report contains the result of tests performed by :

DT&C Co., Ltd.
42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042
http://www.dtnc.net
Tel: +82-31-321-2664 Fax: +82-31-321-1664

2. Test Laboratory

DT&C Co., Ltd. has been accredited / filed / authorized by the agencies listed in the following table;

Certificate	Nation	Agency	Code	Remark
Accreditation	Korea	KOLAS	393	ISO/IEC 17025
	South Africa	SABS	0006	ISO/IEC 17025
Site Filing	USA	FCC	KR0034 101842 678747, 596748, 804488, 165783	Accredited 2.948 Listed
	Canada	IC	5740A-3 5740A-4	Registered
	Japan	VCCI	C-1427 R-1364, R-3385, R-4076, R-4180, R-4496, T-1442, G-10338, G-754, G-10815	Registered
Certification	Korea	KC	KR0034	Designation
	Germany	TUV	CARAT 17 11 89112 005	ISO/IEC 17025

Quality control in the testing laboratory is implemented as per ISO/IEC 17025
which is the “General requirements for the competent of calibration and testing laboratory”.

3. General Information of EUT

Applicant	LG Electronics USA, Inc. 1000 Sylvan Ave. Englewood Cliffs NJ 07632 United States
Manufacturer	LG Electronics USA, Inc. 1000 Sylvan Ave. Englewood Cliffs NJ 07632 United States
Factory	LG Electronics USA, Inc. 1000 Sylvan Ave. Englewood Cliffs NJ 07632 United States
Product Name	Mobile Phone
Model Name	LM-V409V
Add Model Name	None
FCC ID	ZNFV409V
Rated Power	DC 3.85 V
Remarks	Earphone 1. Manufacturer : CRESYN 2. S/N : EAB63728241 USB Cable1 1. Manufacturer : NINGBO 2. S/N : EAD64746101 USB Cable2 1. Manufacturer : LUXSHARE 2. S/N : EAD64746103

Related Submittal(s) / Grant(s)
Original submittal only

4. EUT Operations and Test Configurations

4.1 Principle of Configuration Selection

Emission :
The equipment under test (EUT) was configured to measure its highest possible radiation level.
The test modes were adapted accordingly in reference to the instructions for use.
For each testing mode different configurations were used,
Refer to the individual tests.

4.2 EUT Operation Mode

No.	Mode	Description
1	'READ' & 'WRITE' & 'DELETE' (USS cable : EAD64746101)	The EUT is reading, writing, and erasing internal storage.
2	'READ' & 'WRITE' & 'DELETE' (USB cable : EAD64746103)	The EUT is reading, writing, and erasing internal storage.

4.3 Test Configuration Mode

No.	Mode	Description
1	PC LINK (USB cable : EAD64746101)	EUT was connected PC by USB cable and continuously operated.
2	PC LINK (USB cable : EAD64746103)	EUT was connected PC by USB cable and continuously operated.

4.4 Supported Equipment

Used*	Product Type	Manufacturer	Model	Remarks
AE	KEYBOARD	DELL	KB212-B	DOC
AE	MOUSE	LG	SM-9023	DOC
AE	LCD MONITOR	DELL	UP2414Qt	DOC
AE	PC	DELL	DCNE	DOC
AE	SSD 3.0	SAMSUNG	MU-PT250B	DOC
AE	PRINTER	Bixolon	SRP-770	DOC
AE	Headset	SAMSUNG	SHS-150V/M	DOC

*Abbreviations:
AE - Auxiliary/Associated Equipment, or
SIM - Simulator

4.5 EUT In/Output Port

Name	Type*	Cable Max. >3 m	Cable Shielded	Cable Back shell	Remarks
USB	I/O	1.7	Shield	Plastic	KEYBOARD
USB	I/O	1.7	Shield	Plastic	MOUSE
POWER IN	AC	1.8	Non Shield	Plastic	LCD MONITOR
DSUB OUT	I/O	1.8	Shield	Plastic	
POWER IN	AC	1.8	Non Shield	Plastic	PC
DSUB IN	I/O	1.8	Shield	Plastic	
PARALLEL IN	I/O	2.0	Shield	Plastic	
SERIAL IN	I/O	1.9	Shield	Plastic	
USB	I/O	1.7	Shield	Plastic	
USB	I/O	1.7	Shield	Plastic	
USB	I/O	1.0	Shield	Plastic	
STEREO IN/OUT	I/O	2.0	Non Shield	Plastic	
USB OUT	I/O	1.0	Shield	Plastic	SSD 3.0
POWER IN	DC	1.8	Non Shield	Plastic	PRINTER
PARALLEL OUT	I/O	2.0	Shield	Plastic	
SERIAL OUT	I/O	1.9	Shield	Plastic	
STEREO IN/OUT	I/O	2.0	Non Shield	Plastic	Headset
AUX	I/O	1.8	Non Shield	Plastic	EUT
USB	I/O	1.0	Shield	Plastic	EUT

*Abbreviations:
AC = AC Power Port DC = DC Power Port N/E = Non-Electrical
I/O = Signal Input or Output Port
TP = Telecommunication Ports

4.6 Test Voltage and Frequency

Case	Voltage (V)	Frequency (Hz)	Phases	Remarks
1	AC 120	60 Hz	Single	None

5. Test Summary

Test Items	Applied Standards	Results
Conducted Disturbance	ANSI C63.4 : 2014	**C**
Radiated Disturbance	ANSI C63.4 : 2014	**C**
C=Comply N/C=Not Comply N/T=Not Tested N/A=Not Applicable		

The data in this test report are traceable to the national or international standards.

-Conducted Disturbance

Frequency [MHz]	Phase	Result [dBµV]	Detector	Limit [dBµV]	Margin [dB]
0.77250	N	35.83	CAV	46.00	10.17

-Radiated Disturbance

Frequency [MHz]	Pol.	Result [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]
564.104	H	42.40	QP	46.00	3.60

6. Test Environment

Test Items	Test date (YYYY-MM-DD)	Temp. (℃)	Humidity (% R.H.)	Pressure (kPa)
Conducted Disturbance	2018-08-11	23	54	-
Radiated Disturbance	2018-08-11 2018-08-11	21 21	56 55	

7. Test Results : Emission

7.1 Conducted Disturbance

ANSI C63.4	Mains terminal disturbance voltage	Result
Method: The AMN placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane. This distance was between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment were at least 0,8 m from the AMN. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN. The measuring port of the LISN for EUT was connected to spectrum analyzer. Using conducted emission test software, the emissions were scanned with peak detector mode. After scanning over the frequency range, suspected emissions were selected to perform final measurement. When performing final measurement, the receiver was used which has Quasi-Peak detector and CISPR Average detector. For (0.15 ~ 30) MHz frequency range, Quasi-Peak detector with 10 kHz RBW and 30 kHz VBW was used. By varying the configuration of the test sample and the cable routing it was attempted to maximize the emission.		**Comply**

Fully configured sample scanned over the following frequency range	**Frequency range on each side of line**	**Measurement Point**
	150 kHz to 30 MHz	**Mains**
EUT mode (Refer to clauses 4)	**Test configuration mode**	**1, 2**
	EUT Operation mode	**1, 2**

Limits – Class A

Frequency (MHz)	**Limit dBµV**	
	Quasi-Peak	**Average**
0.15 to 0.50	79	66
0.50 to 30	73	60

Limits – Class B

Frequency (MHz)	**Limit dBµV**	
	Quasi-Peak	**Average**
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Measurement uncertainty	
Expended uncertainty *U* (95 %, Confidence level, *k* = 2)	2.36 dB

Measurement Instrument					
Description	**Model**	**Manufacturer**	**Identifier**	**Cal. Date**	**Cal. Due**
MEASUREMENT SOFTWARE	EMI-C VER. 2.00.0171	TSJ	N/A	N/A	N/A
EMI TEST RECEIVER	ESR7	ROHDE&SCHWARZ	101109	2017.11.16	2018.11.16
TWO-LINE V-NETWORK	ENV216	ROHDE&SCHWARZ	101979	2017.12.18	2018.12.18
LISN	LISN1600	TTI	197204	2018.06.07	2019.06.07
TRANSIENT LIMITER	TL-B0930A	EMCIS	11002	2017.09.07	2018.09.07

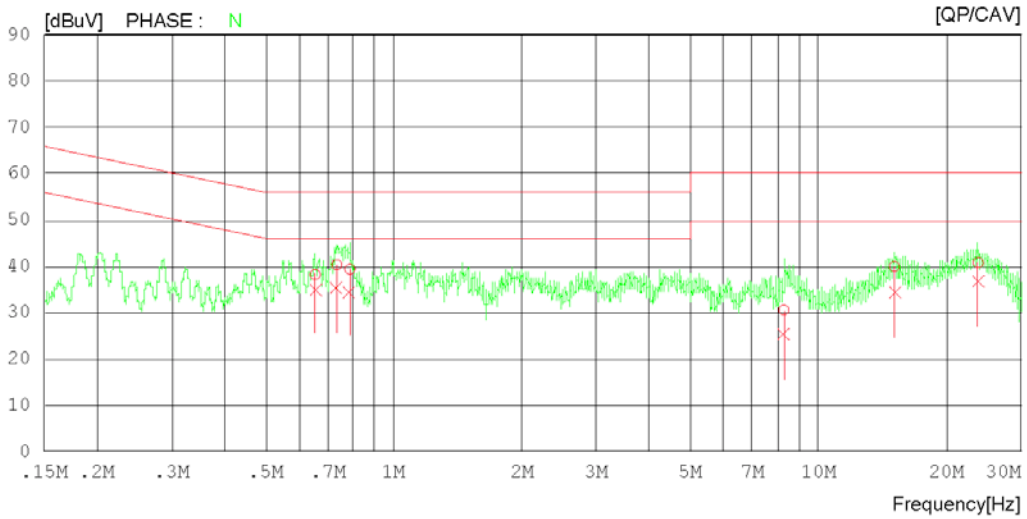
Mains terminal disturbance voltage _Measurement data			
Test configuration mode	**1**	**EUT Operation mode**	**1**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

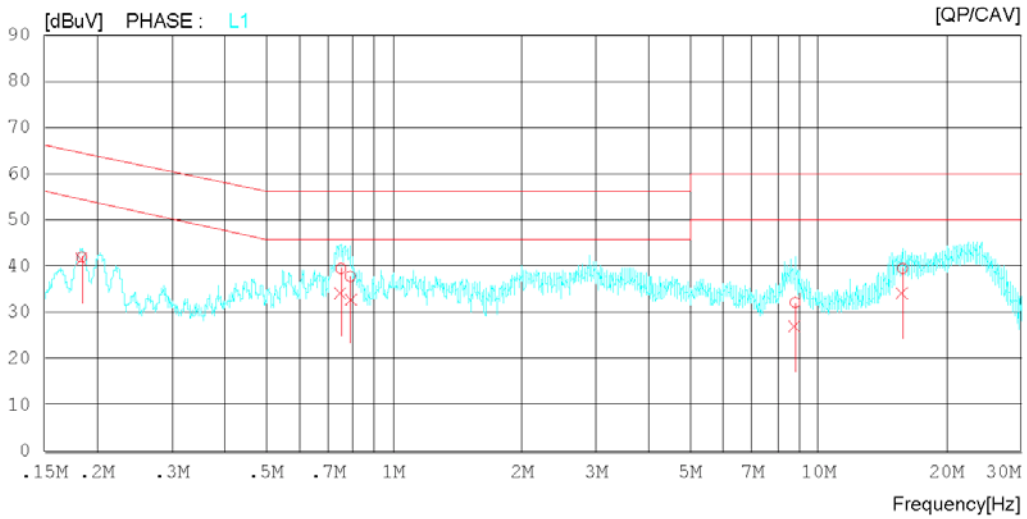
Results of Conducted Emission

DT&C
Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi/Atm 23 'C 54 %.R.H.
Test Condition PC Link, EAD64746101

LIMIT : CISPR32_B QP
CISPR32_B AV





Results of Conducted Emission

DT&C
Date 2018-08-11

Order No.	DTNC1808-06135
Power Supply	120 VAC 60 Hz
Temp/Humi/Atm	23 'C 54 %.R.H.
Test Condition	PC Link, EAD64746101

LIMIT : CISPR32_B QP
CISPR32_B AV

NO	FREQ	READING QP	READING CAV	C.FACTOR	RESULT QP	RESULT CAV	LIMIT QP	LIMIT CAV	MARGIN QP	MARGIN CAV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.65285	18.10	14.86	20.15	38.25	35.01	56.00	46.00	17.75	10.99	N
2	0.73444	20.21	15.01	20.12	40.33	35.13	56.00	46.00	15.67	10.87	N
3	0.78848	19.35	14.50	20.06	39.41	34.56	56.00	46.00	16.59	11.44	N
4	8.29711	10.01	4.73	20.60	30.61	25.33	60.00	50.00	29.39	24.67	N
5	15.12128	18.80	13.19	21.18	39.98	34.37	60.00	50.00	20.02	15.63	N
6	23.83092	20.03	15.82	20.78	40.81	36.60	60.00	50.00	19.19	13.40	N
7	0.18401	21.91	21.46	20.04	41.95	41.50	64.30	54.30	22.35	12.80	L1
8	0.75042	19.29	14.07	20.20	39.49	34.27	56.00	46.00	16.51	11.73	L1
9	0.78950	17.67	12.67	20.16	37.83	32.83	56.00	46.00	18.17	13.17	L1
10	8.82716	11.40	6.18	20.78	32.18	26.96	60.00	50.00	27.82	23.04	L1
11	15.79797	18.37	12.81	21.16	39.53	33.97	60.00	50.00	20.47	16.03	L1

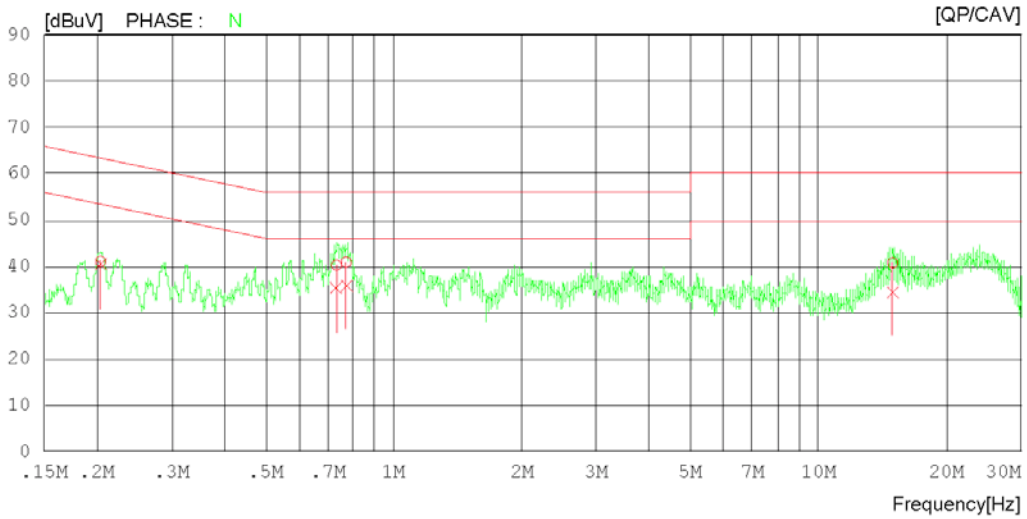
Mains terminal disturbance voltage _Measurement data			
Test configuration mode	**2**	**EUT Operation mode**	**2**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

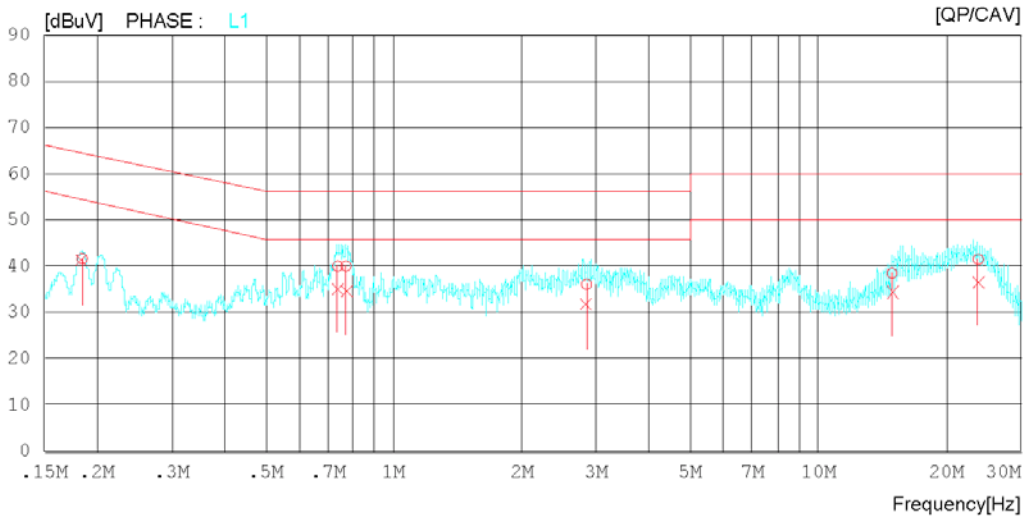
Results of Conducted Emission

DT&C
Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi/Atm 23 'C 54 %.R.H.
Test Condition PC Link, EAD64746103

LIMIT : CISPR32_B QP
CISPR32_B AV





Results of Conducted Emission

DT&C
Date 2018-08-11

Order No.	DTNC1808-06135
Power Supply	120 VAC 60 Hz
Temp/Humi/Atm	23 'C 54 %.R.H.
Test Condition	PC Link, EAD64746103

LIMIT : CISPR32_B QP
CISPR32_B AV

NO	FREQ	READING QP	READING CAV	C.FACTOR	RESULT QP	RESULT CAV	LIMIT QP	LIMIT CAV	MARGIN QP	MARGIN CAV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.20386	21.07	20.49	20.02	41.09	40.51	63.45	53.45	22.36	12.94	N
2	0.73316	20.14	15.08	20.12	40.26	35.20	56.00	46.00	15.74	10.80	N
3	0.77250	20.84	15.75	20.08	40.92	35.83	56.00	46.00	15.08	10.17	N
4	14.98711	19.59	13.28	21.18	40.77	34.46	60.00	50.00	19.23	15.54	N
5	0.18452	21.55	21.15	20.04	41.59	41.19	64.28	54.28	22.69	13.09	L1
6	0.73850	19.83	14.88	20.21	40.04	35.09	56.00	46.00	15.96	10.91	L1
7	0.77150	19.81	14.47	20.18	39.99	34.65	56.00	46.00	16.01	11.35	L1
8	2.84661	15.90	11.42	20.16	36.06	31.58	56.00	46.00	19.94	14.42	L1
9	14.91889	17.32	13.21	21.18	38.50	34.39	60.00	50.00	21.50	15.61	L1
10	23.83295	20.74	15.94	20.78	41.52	36.72	60.00	50.00	18.48	13.28	L1

Calculation

N : Neutral phase, L1 : Live phase
C.FACTOR(dB) : Pulse Limiter(dB) + Cable loss(dB) + Insertion loss of LISN(dB)
Result(dBµV) : Reading Value(dBµV) + C.FACTOR(dB)
Margin(dB) : Limit(dBµV) - Result(dBµV)

7.2 Radiated Disturbance

ANSI C63.4	Radiated disturbance 30 MHz –18 GHz	Result
Method: Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 10 or 3 meter below 1GHz and 3 meter above 1GHz. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable. For final measurement below 1 GHz frequency range, Quasi-Peak detector with (RBW = 120 kHz Bandwidth) was used. For final measurement above 1 GHz frequency range, Peak detector with (RBW = 1 MHz Bandwidth) and CISPR Average detector with (RBW = 1 MHz Bandwidth) were used.		**Comply**

EUT mode (Refer to clauses 4)	**Test configuration mode**	**1, 2**
	EUT Operation mode	**1, 2**

Radiated Disturbance below 1 000 MHz

Frequency range (MHz)	**Quasi-peak limit dBµV/m**	
	Class A (10 m distance)	**Class B (3 m distance)**
30 to 88	39.1	40
88 to 216	43.5	43.5
216 to 960	46.4	46
960 to 1 000	49.5	54

According to 15.109(g), as an alternative to the radiated emission limit shown above, digital devices may be shown to comply with the standards contained in Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22 shown.

Frequency range (MHz)	**Quasi-peak limit dBµV/m**	
	Class A (10 m distance)	**Class B (10 m distance)**
30 to 230	40	30
230 to 1 000	47	37

Radiated Disturbance for above 1 000 MHz at a measurement distance of 3 m

Frequency range (GHz)	**Peak limit dBµV/m**		**Average limit dBµV/m**	
	Class A	**Class B**	**Class A**	**Class B**
1 to 40	80	74	60	54

The test frequency range of Radiated Disturbance measurements are listed below.

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	**Upper frequency of measurement range (MHz)**
Below 108	1 000
108 – 500	2 000
500 – 1 000	5 000
Above 1 000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

Measurement uncertainty	
Expended uncertainty *U* (95 %, Confidence level, *k* = 2)	4.16 dB, (30 ~ 1 000) MHz 3.74 dB, (1 ~ 6) GHz

Measurement Instrument					
Description	**Model**	**Manufacturer**	**Identifier**	**Cal. Date**	**Cal. Due**
MEASUREMENT SOFTWARE	EMI-R VER. 2.00.0177	TSJ	N/A	N/A	N/A
EMI TEST RECEIVER	ESU	ROHDE&SCHWARZ	100538	2018.01.29	2019.01.29
BILOG ANTENNA	VULB 9160	SCHWARZBECK	3359	2017.09.14	2019.09.14
LOW NOISE PRE AMPLIFIER	MLA-100K01-B01-26	TSJ	1252741	2018.02.19	2019.02.19
HORN ANTENNA	3117	ETS-LINDGREN	00152093	2018.03.26	2020.03.26
HORN ANTENNA WITH PREAMPLIFIER	EM-6969/ MLA-0618-B03-34	ELECTRO-METRICS/ TSJ	156/ 1785642	2017.02.10	2019.02.10
PREAMPLIFIER	8449B	AGILENT TECHNOLOGIES	3008A01590	2018.02.20	2019.02.20
(NOTE : THE MEASUREMENT ANTENNAS WERE CALIBRATED IN ACCORDANCE TO THE REQUIREMENTS OF C63.5-2017.)					

Radiated disturbance at (30 ~ 1000) MHz _Measurement data			
Test configuration mode	**1**	**EUT Operation mode**	**1**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

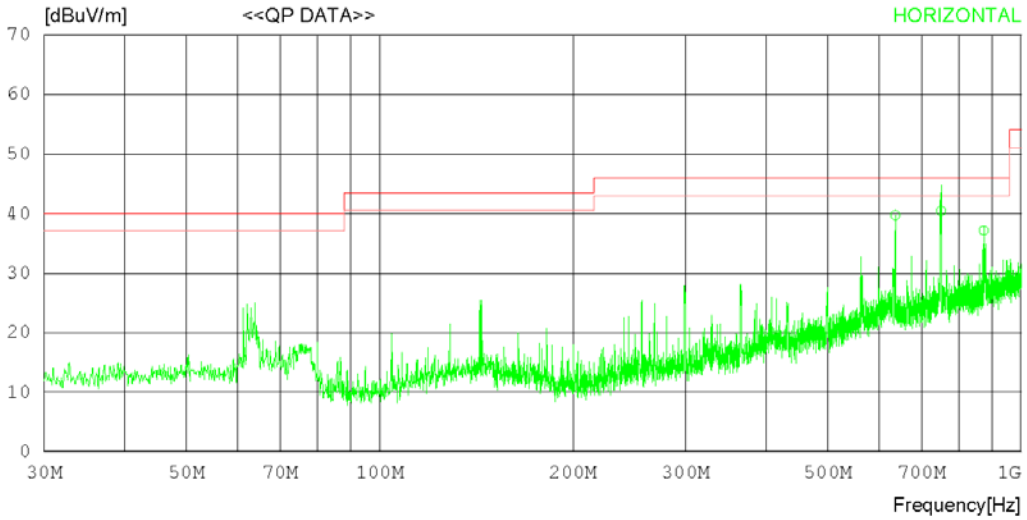
RADIATED EMISSION

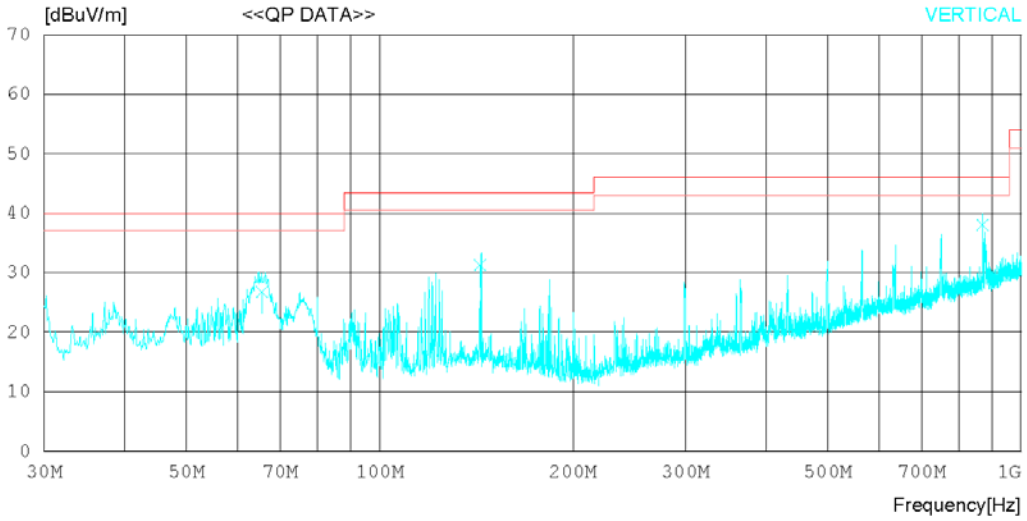
Date 2018-08-11

Order No. DTNC-1808-01635
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 56 %.R.H.
Test Condition PC Link, EAD64746101

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 3 dB





RADIATED EMISSION

Date 2018-08-11

Order No. DTNC-1808-01635
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 56 %.R.H.
Test Condition PC Link, EAD64746101

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 3 dB

No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	636.992	34.10	26.40	4.44	25.24	39.70	46.00	6.30	100	320
2	749.415	32.70	28.19	4.90	25.35	40.44	46.00	5.56	100	306
3	874.637	28.10	29.35	5.25	25.58	37.12	46.00	8.88	100	355
----- Vertical ------										
4	65.505	34.10	16.92	1.30	25.52	26.80	40.00	13.20	100	101
5	143.330	35.60	19.33	1.93	25.58	31.28	43.50	12.22	100	280
6	869.722	29.10	29.30	5.19	25.57	38.02	46.00	7.98	130	310

Radiated disturbance at (1 ~ 6) GHz _Peak measurement data			
Test configuration mode	**1**	**EUT Operation mode**	**1**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

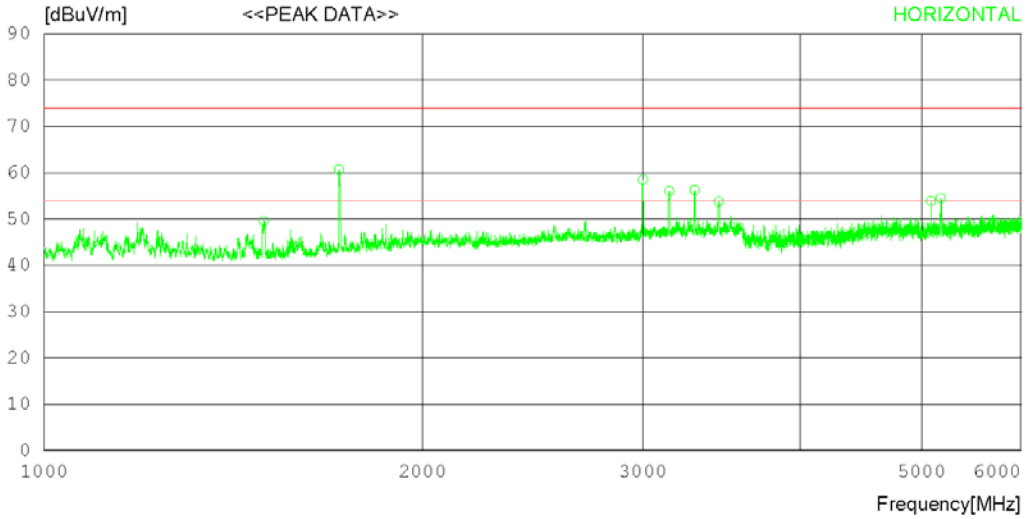
RADIATED EMISSION

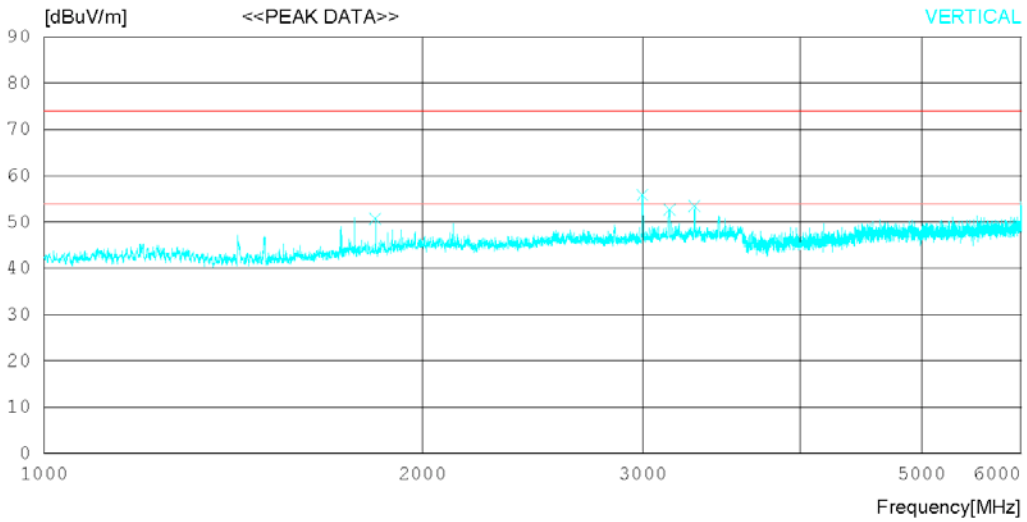
Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746101

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)





RADIATED EMISSION

Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746101

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)

No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	1495.625	49.80	27.90	4.18	32.31	49.57	74.0	24.43	380	1
2	1716.875	59.50	29.20	4.37	32.40	60.67	74.0	13.33	100	118
3	2999.375	52.80	32.50	5.84	32.58	58.56	74.0	15.44	100	1
4	3146.875	49.80	32.99	5.79	32.59	55.99	74.0	18.01	100	194
5	3295.000	50.00	32.91	5.92	32.61	56.22	74.0	17.78	331	1
6	3445.625	47.40	32.80	6.16	32.62	53.74	74.0	20.26	290	351
7	5088.125	44.70	34.12	7.33	32.29	53.86	74.0	20.14	100	341
8	5174.375	45.20	34.20	7.53	32.35	54.58	74.0	19.42	100	244
----- Vertical ------										
9	1835.625	48.20	30.54	4.43	32.45	50.72	74.0	23.28	100	358
10	2996.250	50.10	32.49	5.84	32.58	55.85	74.0	18.15	100	354
11	3147.500	46.40	33.00	5.79	32.59	52.60	74.0	21.4	140	0
12	3295.000	47.20	32.91	5.92	32.61	53.42	74.0	20.58	100	358

Radiated disturbance at (1 ~ 6) GHz _Average measurement data			
Test configuration mode	**1**	**EUT Operation mode**	**1**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

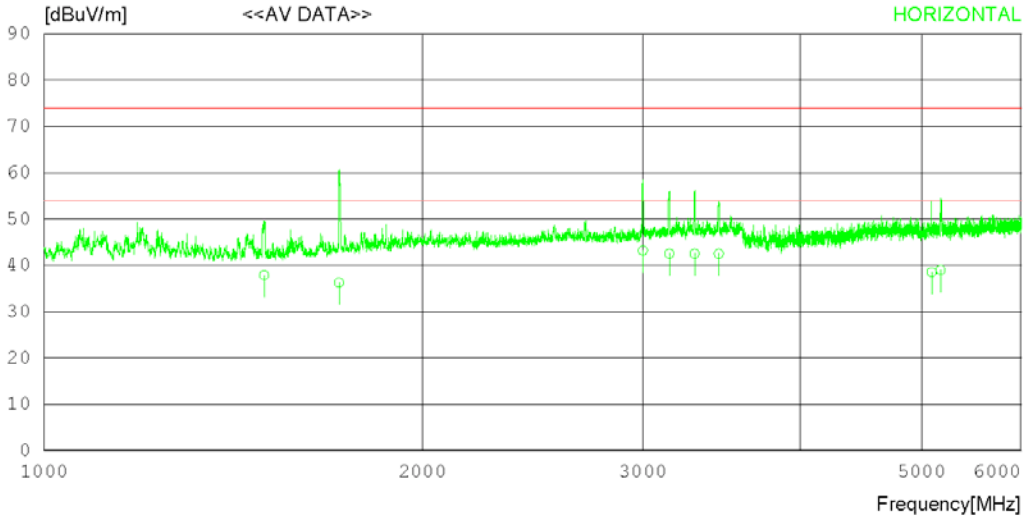
RADIATED EMISSION

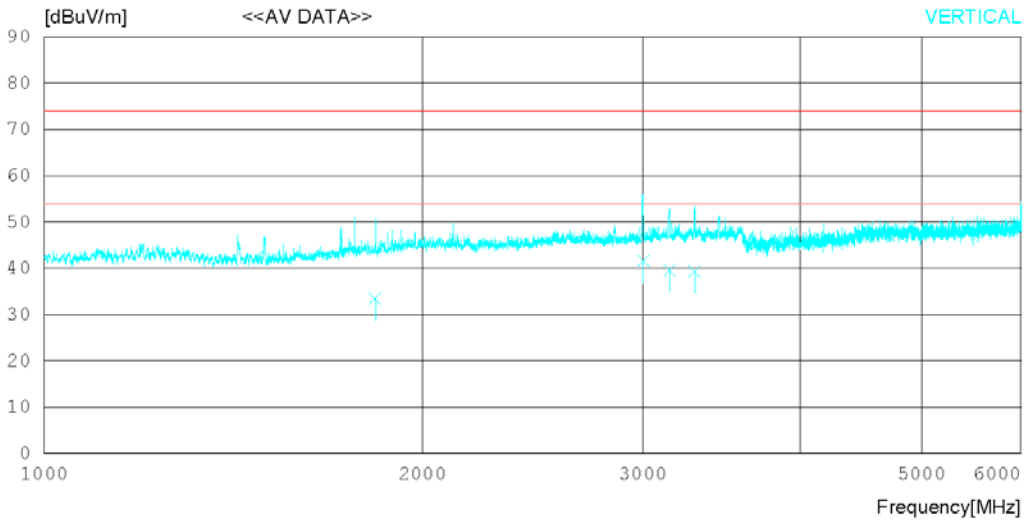
Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746101

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)





RADIATED EMISSION

Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746101

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)

No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	1496.713	38.10	27.90	4.18	32.31	37.87	54.00	16.13	380	160
2	1717.203	35.10	29.21	4.37	32.40	36.28	54.00	17.72	100	120
3	2999.356	37.40	32.50	5.84	32.58	43.16	54.00	10.84	100	210
4	3146.884	36.30	32.99	5.79	32.59	42.49	54.00	11.51	100	180
5	3295.221	36.30	32.91	5.92	32.61	42.52	54.00	11.48	331	170
6	3445.554	36.20	32.80	6.16	32.62	42.54	54.00	11.46	290	340
7	5088.952	29.40	34.12	7.34	32.29	38.57	54.00	15.43	100	311
8	5175.283	29.60	34.20	7.53	32.35	38.98	54.00	15.02	100	110
----- Vertical ------										
9	1835.402	30.90	30.54	4.43	32.45	33.42	54.00	20.58	100	310
10	2998.948	35.80	32.50	5.84	32.58	41.56	54.00	12.44	100	310
11	3149.357	33.40	33.00	5.79	32.59	39.60	54.00	14.40	140	120
12	3295.284	33.10	32.91	5.92	32.61	39.32	54.00	14.68	100	320

Radiated disturbance at (6 ~ 18) GHz _Peak measurement data			
Test configuration mode	**1**	**EUT Operation mode**	**1**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

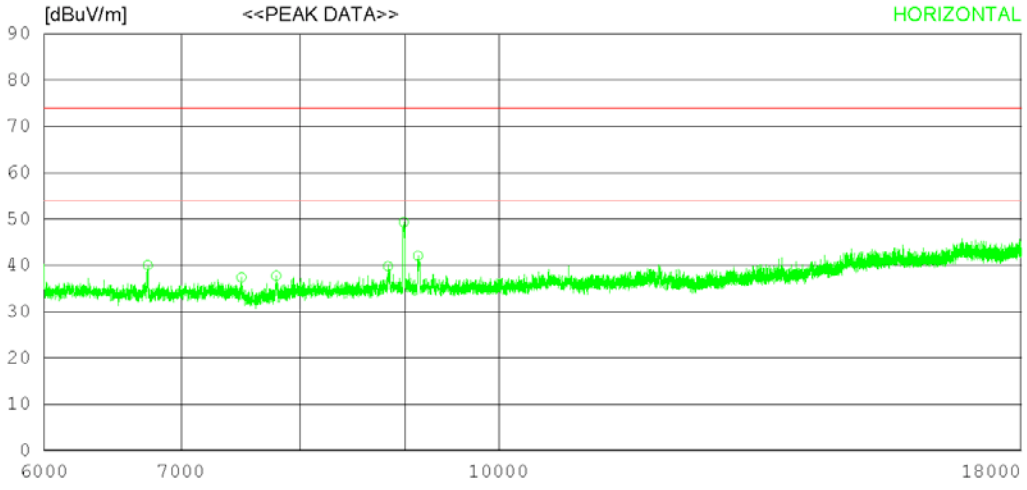
RADIATED EMISSION

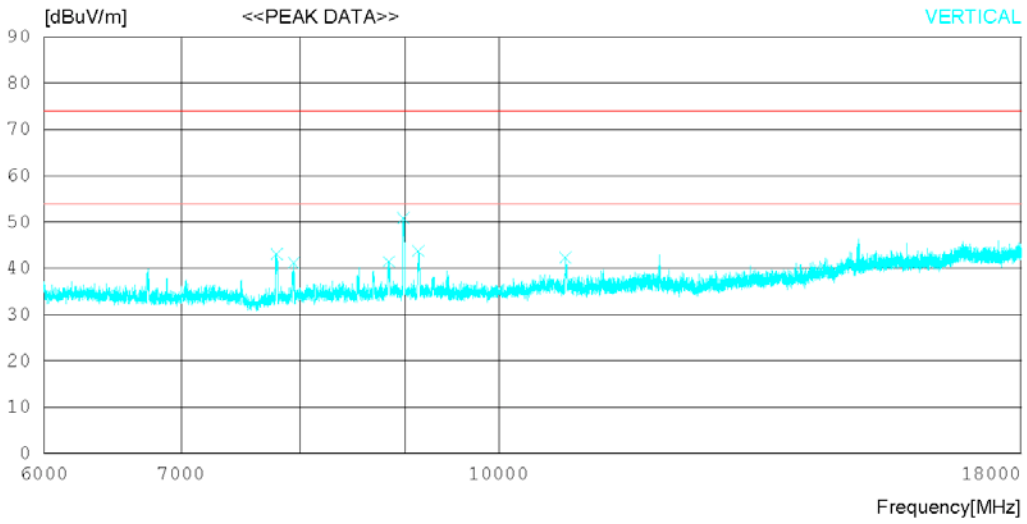
Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746101

Model Name

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)





* The measurement is performed above 18 GHz up to 30 GHz and not found emissions above 18 GHz.

RADIATED EMISSION

Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746101

Model Name

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)

No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	6742.500	39.50	31.40	7.88	38.77	40.01	74.0	33.99	210	358
2	7490.250	36.40	31.37	8.36	38.79	37.34	74.0	36.66	100	358
3	7788.750	36.00	31.36	8.67	38.31	37.72	74.0	36.28	100	358
4	8833.500	36.00	31.74	9.70	37.70	39.74	74.0	34.26	100	358
5	8991.750	45.70	31.82	9.42	37.64	49.30	74.0	24.7	380	40
6	9138.000	38.40	31.88	9.54	37.72	42.10	74.0	31.9	190	79
----- Vertical ------										
7	7791.750	41.40	31.36	8.67	38.29	43.14	74.0	30.86	175	26
8	7944.750	39.00	31.35	8.71	37.93	41.13	74.0	32.87	100	0
9	8841.750	37.70	31.75	9.69	37.70	41.44	74.0	32.56	100	358
10	8989.500	47.20	31.82	9.42	37.64	50.80	74.0	23.2	100	358
11	9141.000	40.00	31.89	9.54	37.72	43.71	74.0	30.29	210	26
12	10779.750	36.00	32.56	11.52	37.76	42.32	74.0	31.68	100	358

Radiated disturbance at (6 ~ 18) GHz _Average measurement data			
Test configuration mode	**1**	**EUT Operation mode**	**1**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

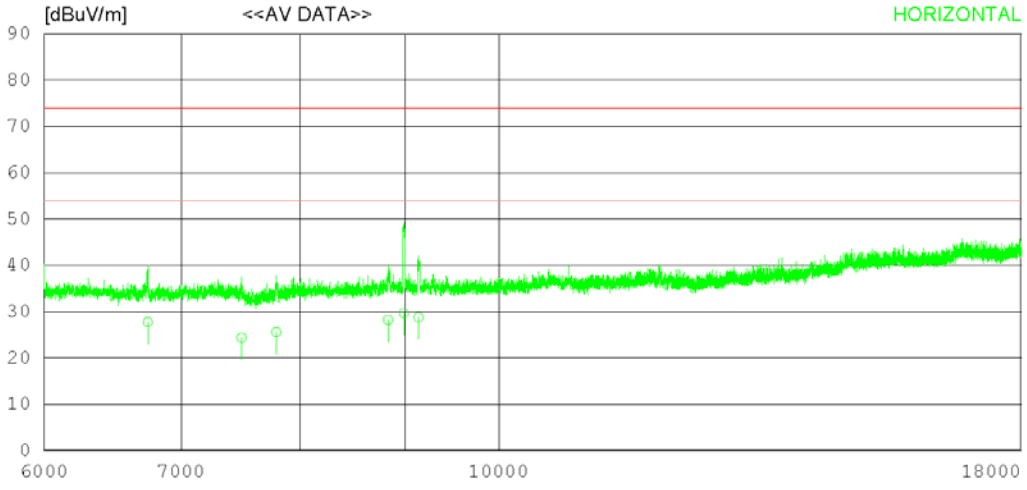
RADIATED EMISSION

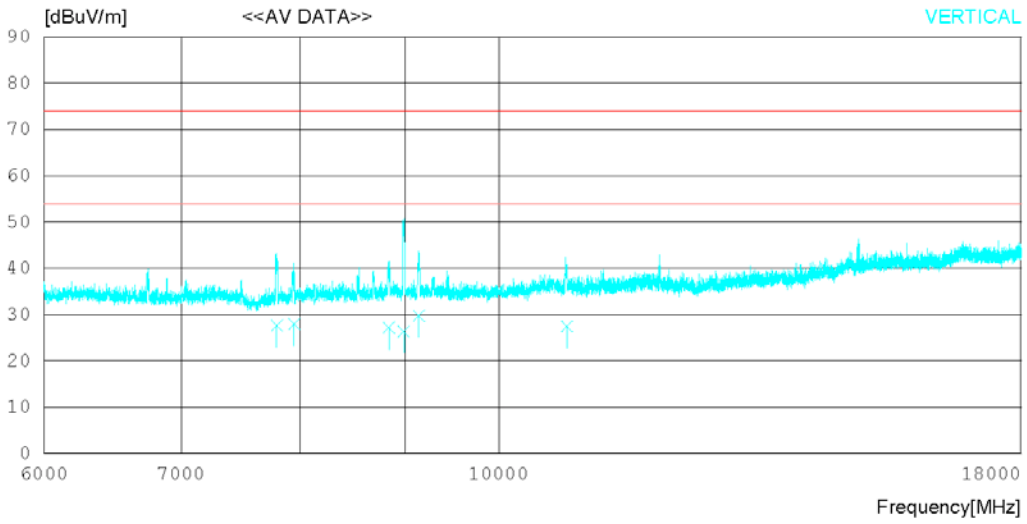
Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746101

Model Name

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)





* The measurement is performed above 18 GHz up to 30 GHz and not found emissions above 18 GHz.

RADIATED EMISSION

Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746101

Model Name

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)

No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	6743.220	27.20	31.40	7.88	38.77	27.71	54.00	26.29	210	60
2	7491.350	23.40	31.37	8.36	38.79	24.34	54.00	29.66	100	245
3	7788.850	23.80	31.36	8.67	38.31	25.52	54.00	28.48	100	280
4	8834.111	24.40	31.74	9.70	37.70	28.14	54.00	25.86	100	310
5	8990.450	26.10	31.82	9.42	37.64	29.70	54.00	24.30	380	140
6	9139.200	25.10	31.89	9.54	37.72	28.81	54.00	25.19	190	80
----- Vertical ------										
7	7791.950	25.90	31.36	8.67	38.29	27.64	54.00	26.36	175	80
8	7945.150	25.84	31.35	8.71	37.93	27.97	54.00	26.03	100	40
9	8842.450	23.40	31.75	9.69	37.70	27.14	54.00	26.86	100	310
10	8990.210	22.80	31.82	9.42	37.64	26.40	54.00	27.60	100	240
11	9143.121	26.09	31.89	9.54	37.72	29.80	54.00	24.20	210	70
12	10800.150	21.10	32.57	11.54	37.77	27.44	54.00	26.56	100	330

Radiated disturbance at (30 ~ 1000) MHz _Measurement data			
Test configuration mode	**2**	**EUT Operation mode**	**2**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

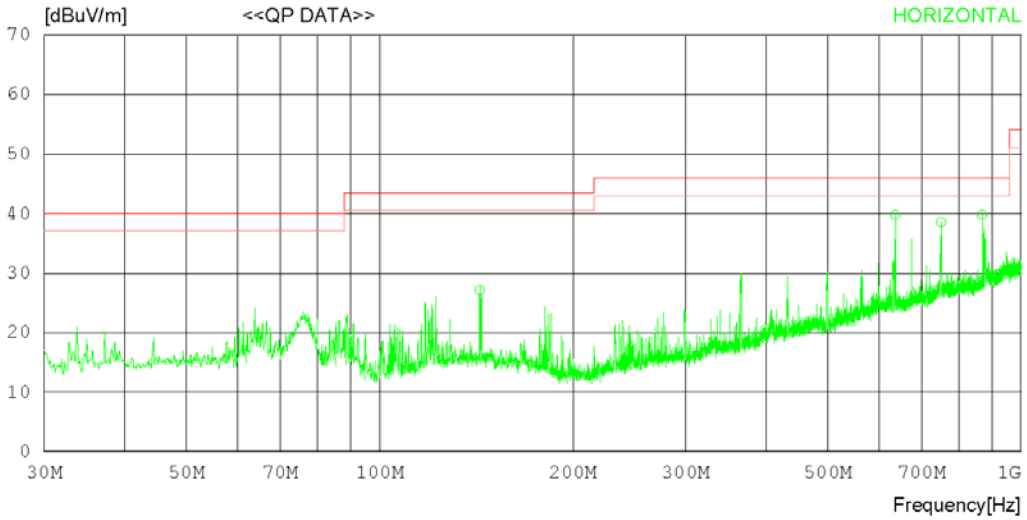
RADIATED EMISSION

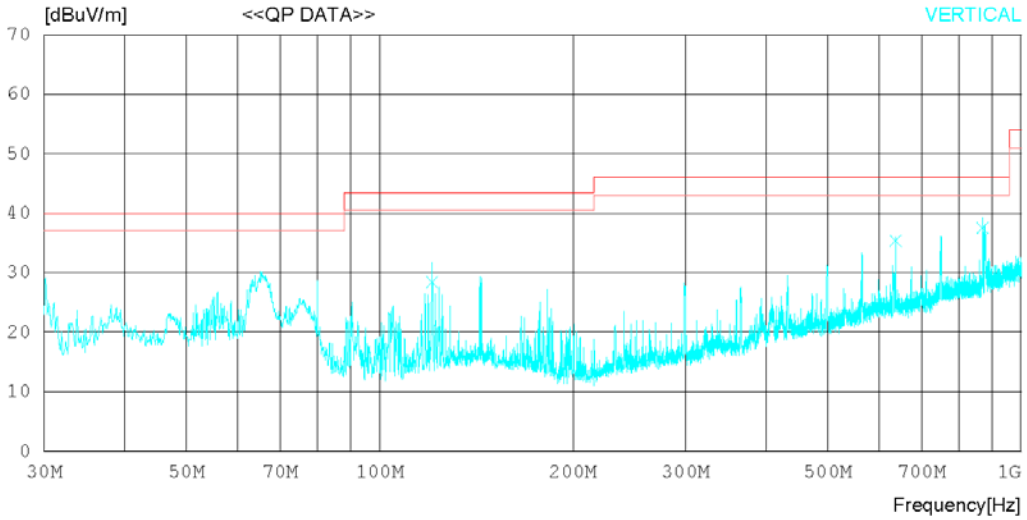
Date 2018-08-11

Order No. DTNC-1808-01635
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 56 %.R.H.
Test Condition PC Link, EAD64746103

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 3 dB





RADIATED EMISSION

Date 2018-08-11

Order No. DTNC-1808-01635
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 56 %.R.H.
Test Condition PC Link, EAD64746103

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 3 dB

No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	143.324	31.50	19.33	1.93	25.58	27.18	43.50	16.32	100	275
2	636.992	34.20	26.40	4.44	25.24	39.80	46.00	6.20	100	355
3	749.615	30.80	28.19	4.90	25.35	38.54	46.00	7.46	100	290
4	869.979	30.90	29.30	5.19	25.57	39.82	46.00	6.18	100	63
----- Vertical ------										
5	120.793	34.20	18.05	1.78	25.56	28.47	43.50	15.03	100	254
6	637.172	29.80	26.40	4.44	25.24	35.40	46.00	10.60	100	189
7	869.943	28.70	29.30	5.19	25.57	37.62	46.00	8.38	100	351

Radiated disturbance at (1 ~ 6) GHz _Peak measurement data			
Test configuration mode	**2**	**EUT Operation mode**	**2**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

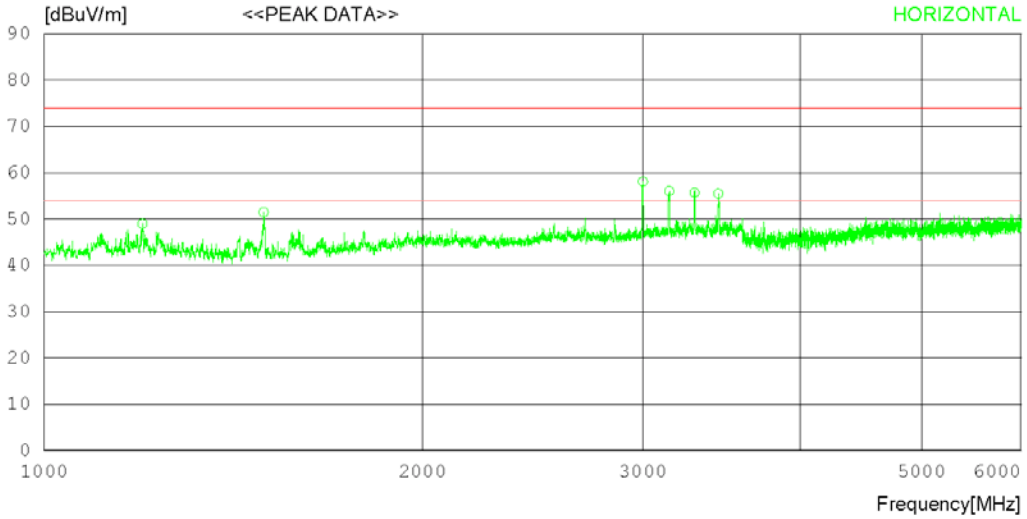
RADIATED EMISSION

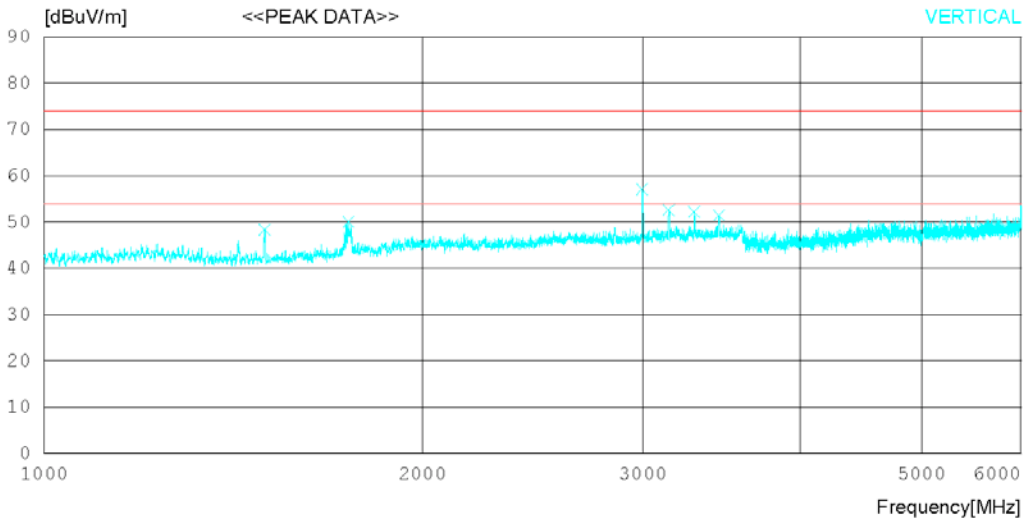
Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746103

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)





RADIATED EMISSION

Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746103

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)

No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	1197.500	48.60	28.77	3.76	32.18	48.95	74.0	25.05	242	197
2	1496.250	51.70	27.90	4.18	32.31	51.47	74.0	22.53	100	0
3	2999.375	52.30	32.50	5.84	32.58	58.06	74.0	15.94	100	124
4	3146.250	49.90	32.99	5.79	32.59	56.09	74.0	17.91	100	190
5	3296.875	49.50	32.91	5.92	32.61	55.72	74.0	18.28	395	190
6	3444.375	49.10	32.80	6.16	32.62	55.44	74.0	18.56	273	351
----- Vertical ------										
7	1497.500	48.60	27.90	4.18	32.31	48.37	74.0	25.63	135	358
8	1747.500	48.50	29.57	4.37	32.41	50.03	74.0	23.97	100	154
9	2993.125	51.30	32.49	5.83	32.58	57.04	74.0	16.96	100	353
10	3143.125	46.40	32.99	5.79	32.59	52.59	74.0	21.41	100	358
11	3292.500	46.00	32.92	5.92	32.61	52.23	74.0	21.77	100	358
12	3446.875	45.10	32.80	6.16	32.62	51.44	74.0	22.56	100	35

Radiated disturbance at (1 ~ 6) GHz _Average measurement data			
Test configuration mode	**2**	**EUT Operation mode**	**2**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

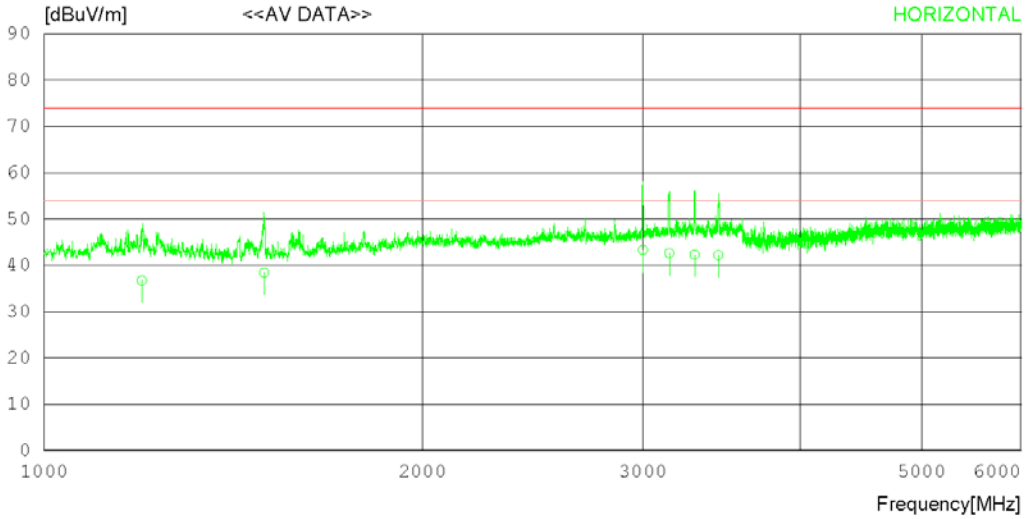
RADIATED EMISSION

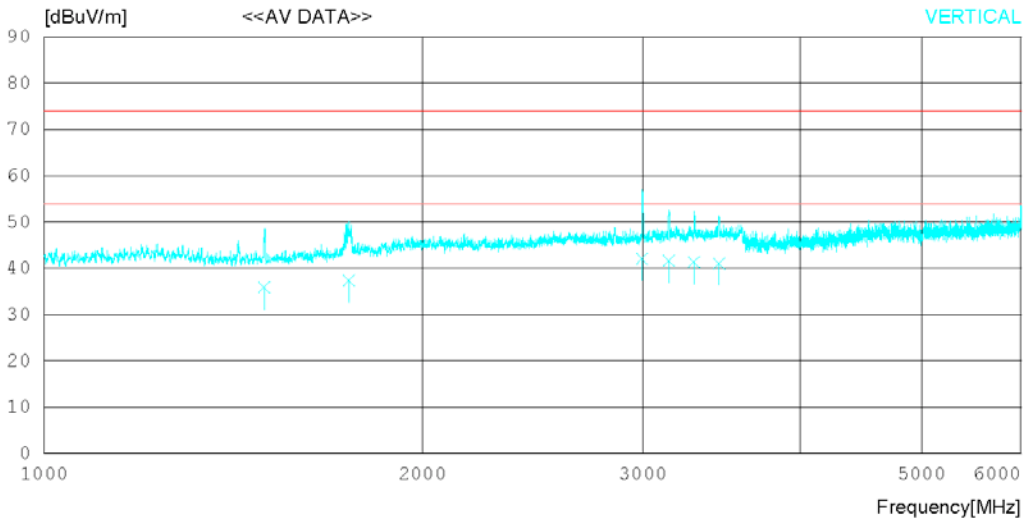
Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746103

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)





RADIATED EMISSION

Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746103

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)

No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	1197.280	36.40	28.76	3.76	32.18	36.74	54.00	17.26	242	174
2	1496.966	38.60	27.90	4.18	32.31	38.37	54.00	15.63	100	40
3	2999.286	37.50	32.50	5.84	32.58	43.26	54.00	10.74	100	134
4	3146.550	36.40	32.99	5.79	32.59	42.59	54.00	11.41	100	145
5	3297.218	36.10	32.91	5.92	32.61	42.32	54.00	11.68	395	210
6	3444.184	35.80	32.80	6.16	32.62	42.14	54.00	11.86	273	280
----- Vertical ------										
7	1496.708	36.10	27.90	4.18	32.31	35.87	54.00	18.13	135	180
8	1748.110	35.90	29.58	4.37	32.41	37.44	54.00	16.56	100	140
9	2993.125	36.30	32.49	5.83	32.58	42.04	54.00	11.96	100	180
10	3143.345	35.40	32.99	5.79	32.59	41.59	54.00	12.41	100	310
11	3292.448	35.10	32.92	5.92	32.61	41.33	54.00	12.67	100	245
12	3447.221	34.70	32.80	6.16	32.62	41.04	54.00	12.96	100	50

Radiated disturbance at (6 ~ 18) GHz _Peak measurement data			
Test configuration mode	**2**	**EUT Operation mode**	**2**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

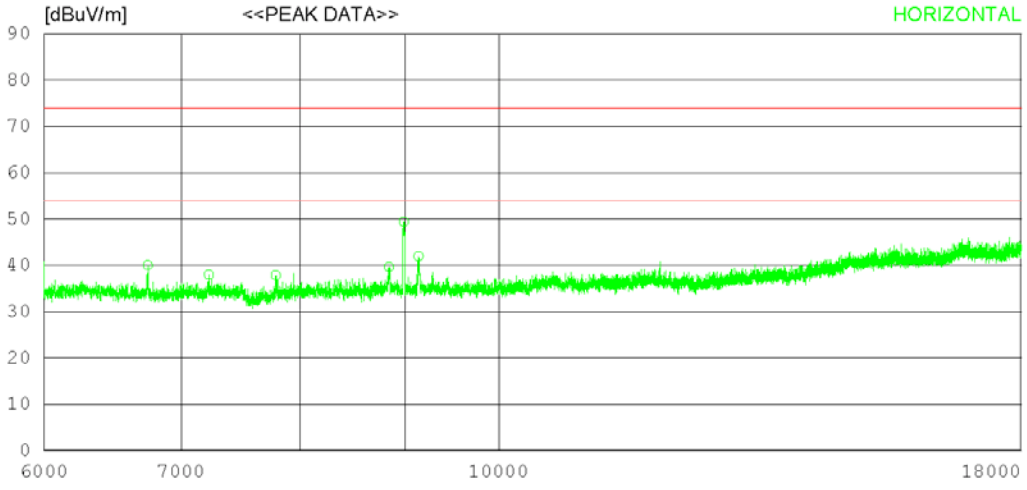
RADIATED EMISSION

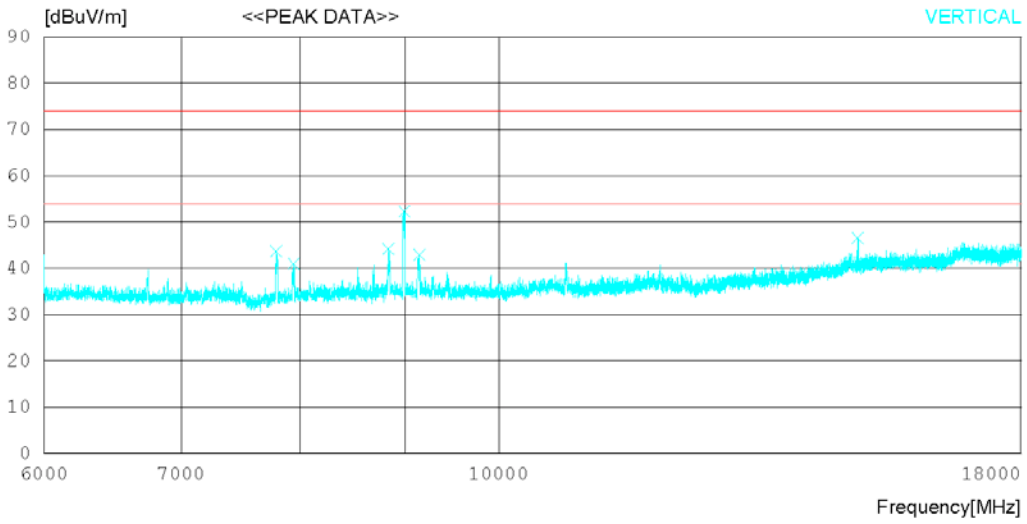
Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746103

Model Name

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)





* The measurement is performed above 18 GHz up to 30 GHz and not found emissions above 18 GHz.

RADIATED EMISSION

Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746103

Model Name

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)

No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	6743.250	39.50	31.40	7.88	38.77	40.01	74.0	33.99	188	1
2	7222.500	36.70	31.37	8.16	38.23	38.00	74.0	36	100	1
3	7785.750	36.10	31.36	8.66	38.32	37.80	74.0	36.2	100	302
4	8843.250	35.90	31.75	9.69	37.70	39.64	74.0	34.36	100	119
5	8991.000	45.80	31.82	9.42	37.64	49.40	74.0	24.6	310	63
6	9141.000	38.20	31.89	9.54	37.72	41.91	74.0	32.09	221	1
----- Vertical ------										
7	7787.250	41.90	31.36	8.67	38.31	43.62	74.0	30.38	140	1
8	7944.750	38.80	31.35	8.71	37.93	40.93	74.0	33.07	100	355
9	8836.500	40.50	31.74	9.70	37.70	44.24	74.0	29.76	100	1
10	8996.250	48.70	31.82	9.42	37.64	52.30	74.0	21.7	100	1
11	9148.500	39.10	31.89	9.55	37.73	42.81	74.0	31.19	100	15
12	14978.250	33.90	35.33	14.12	36.84	46.51	74.0	27.49	100	20

Radiated disturbance at (6 ~ 18) GHz _Average measurement data			
Test configuration mode	**2**	**EUT Operation mode**	**2**
Test voltage (V)	**120**	**Test Frequency (Hz)**	**60**

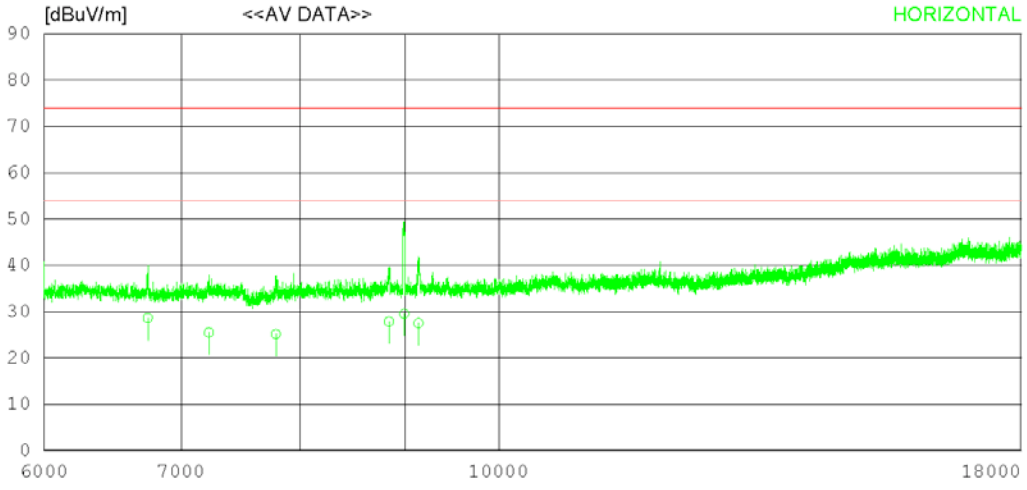
RADIATED EMISSION

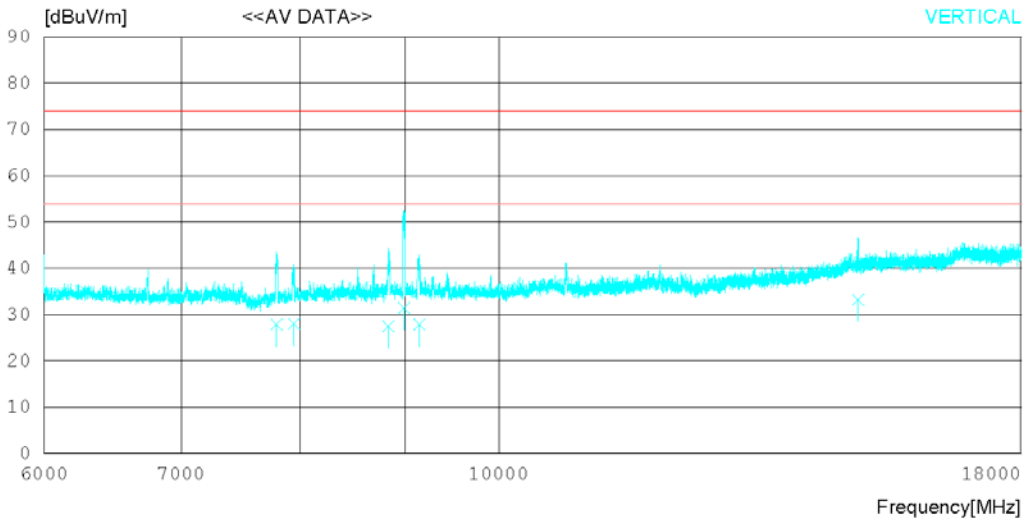
Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746103

Model Name

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)





* The measurement is performed above 18 GHz up to 30 GHz and not found emissions above 18 GHz.

RADIATED EMISSION

Date 2018-08-11

Order No. DTNC1808-06135
Power Supply 120 VAC 60 Hz
Temp/Humi 21 'C 55 %.R.H.
Test Condition PC Link, EAD64746103

Model Name

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)

No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	6743.977	28.10	31.40	7.88	38.77	28.61	54.00	25.39	188	310
2	7222.687	24.20	31.37	8.16	38.23	25.50	54.00	28.50	100	160
3	7785.220	23.40	31.36	8.66	38.32	25.10	54.00	28.90	100	140
4	8843.750	24.10	31.75	9.69	37.70	27.84	54.00	26.16	100	170
5	8995.488	25.90	31.82	9.42	37.64	29.50	54.00	24.50	310	70
6	9142.120	23.80	31.89	9.54	37.72	27.51	54.00	26.49	221	140
----- Vertical ------										
7	7791.845	26.10	31.36	8.67	38.29	27.84	54.00	26.16	140	170
8	7945.250	25.90	31.35	8.71	37.93	28.03	54.00	25.97	100	340
9	8835.296	23.70	31.74	9.70	37.70	27.44	54.00	26.56	100	280
10	8993.043	27.80	31.82	9.42	37.64	31.40	54.00	22.60	100	210
11	9147.847	24.20	31.89	9.55	37.73	27.91	54.00	26.09	100	60
12	14982.860	20.60	35.34	14.11	36.83	33.22	54.00	20.78	100	190

Calculation

N : Neutral phase, L1 : Live phase
C.FACTOR(dB) : Pulse Limiter(dB) + Cable loss(dB) + Insertion loss of LISN(dB)
Result(dBµV) : Reading Value(dBµV) + C.FACTOR(dB)
Margin(dB) : Limit(dBµV) - Result(dBµV)

8. Revision History

Date	Description	Revised By	Reviewed By
Aug. 16. 2018	Initial report	YongKi Kim	HyungJun Kim

-End of test report-