

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. : DREFCC1907-0220(1)

2. Client / Applicant

- Name : Intellian Systems, Inc.
- Address : 7F. Dongik Building, 730, Eonju-ro, Gangnam-gu, Seoul, Republic of Korea

3. Use of Report : Grant of Certification

4. Product Name / Model Name / FCC ID : All-in-one android pc / S16N-X18K-7WN / 2ATXA-SA163PLUS

5. Test Standard : ANSI C63.4:2014

FCC Part 15 Subpart B

(Class A digital devices, peripherals & external switching power supplies.)

6. Date of Test : Jul. 12. 2019 ~ Jul. 29. 2019

7. Testing Environment : Temperature (23 ~ 26) °C , Humidity (49 ~ 53) % R.H.

8. Test Result : Refer to the attached Test Result

Affirmation	Tested by	Reviewed by
	Name : Taehyun Choi 	Name : KyoungHwan Bae 

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.

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Sep. 02. 2019

DT&C Co., Ltd.

'This test report is not related to KS Q ISO/IEC 17025 and KOLAS accreditation.'

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

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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.dtnet.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
	Ghana	NCA	NCA agreement 23rd,Oct,2018	-
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-3385, R-4076, R-4180, R-4496, T-1442, G-10338, G-754, G-10815, G-20051	Registered
Certification	Korea	KC	KR0034	Designation
	Germany	TUV	CARAT 17 11 89112 005	ISO/IEC 17025
	Russia	RMRS	17.10189.296	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	Intellian Systems, Inc. 7F. Dongik Building, 730, Eonju-ro, Gangnam-gu, Seoul, Republic of Korea
Manufacturer	Intellian Systems, Inc. 7F. Dongik Building, 730, Eonju-ro, Gangnam-gu, Seoul, Republic of Korea
Product Name	All-in-one android pc
Model Name	S16N-X18K-7WN
Add Model Name	None
Add Model Difference	None
Maximum Internal Frequency	1.2 GHz
Software Version	Android 6.0.1
Hardware Version	3Q-V40-1.1
FCC ID	2ATXA-SA163PLUS
RF Module Name	None
Rated Power	DC 12 V, 1.6 A / 60 Hz
Remarks	None

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	Display mode	The EUT receives the DC voltage, reads and writes the USB memory, outputs the audio, and outputs the H-pattern image.

4.3 Test Configuration Mode

No.	Mode	Description
1	Display mode	The EUT is connected to the AC / DC adapter, the USB memory is connected to the Micro USB port, the headset is connected to the AUX port, and tested by connecting a mouse to the USB port.

4.4 Supported Equipment

Used*	Product Type	Manufacturer	Model	Remarks
AE	USB Memory	Sandisk	3.0 OTG USB	None
AE	AC/DC Adapter	SHENZHEN YINGHUIYUAN ELECTRONICS CO., LTD	YHY-12002000	A11712070861
AE	Headset	COSY	COV903	None
AE	Mouse	Logitech	B100	810-002149
*Abbreviations: AE - Auxiliary/Associated Equipment, or SIM - Simulator				

4.5 EUT In/Output Port

Name	Type*	Cable Max. >3m	Cable Shielded	Cable Back shell	Remarks
DC In	DC	1.2	Non shield	Plastic	None
Micro USB	I/O	-	Non shield	Plastic	None
USB	I/O	1.0	Non shield	Plastic	None
AUX	I/O	1.5	Non shield	Plastic	None
*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 (DC/AC-Hz)	Phases	Remarks
1	AC 120	60	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		

-Conducted Disturbance

Frequency [MHz]	Phase	Result [dB μ V]	Detector	Limit [dB μ V]	Margin [dB]
0.15209	N	52.76	QP	79.00	26.24

-Radiated Disturbance

Frequency [MHz]	Pol.	Result [dB μ V/m]	Detector	Limit [dB μ V/m]	Margin [dB]
36.790	Vertical	33.95	QP	39.00	5.05

6. Test Environment

Test Items	Test date (YYYY-MM-DD)	Temp. (°C)	Humidity (% R.H.)	Pressure (kPa)
Conducted Disturbance	2019-07-12	23	53	-
Radiated Disturbance	2019-07-12 2019-07-29	23 26	53 49	

7. Test Results : Emission

7.1 Conducted Disturbance

ANSI C63.4	Mains terminal disturbance voltage		Result
<u>Method:</u> 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	
	EUT Operation mode	1	
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 Instrument					
Description	Model	Manufacturer	Identifier	Cal. Date	Cal. Due
MEASUREMENT SOFTWARE	EMI-C VER. 2.00.0165	TSJ	N/A	N/A	N/A
EMI TEST RECEIVER	ESR	ROHDE & SCHWARZ	101767	2018.12.19	2019.12.19
LISN	NNLK 8129	SCHWARZBECK	8129-272	2018.07.31	2019.07.31
PULSE LIMITER	ESH3-Z2	ROHDE & SCHWARZ	101334	2018.12.19	2019.12.19

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

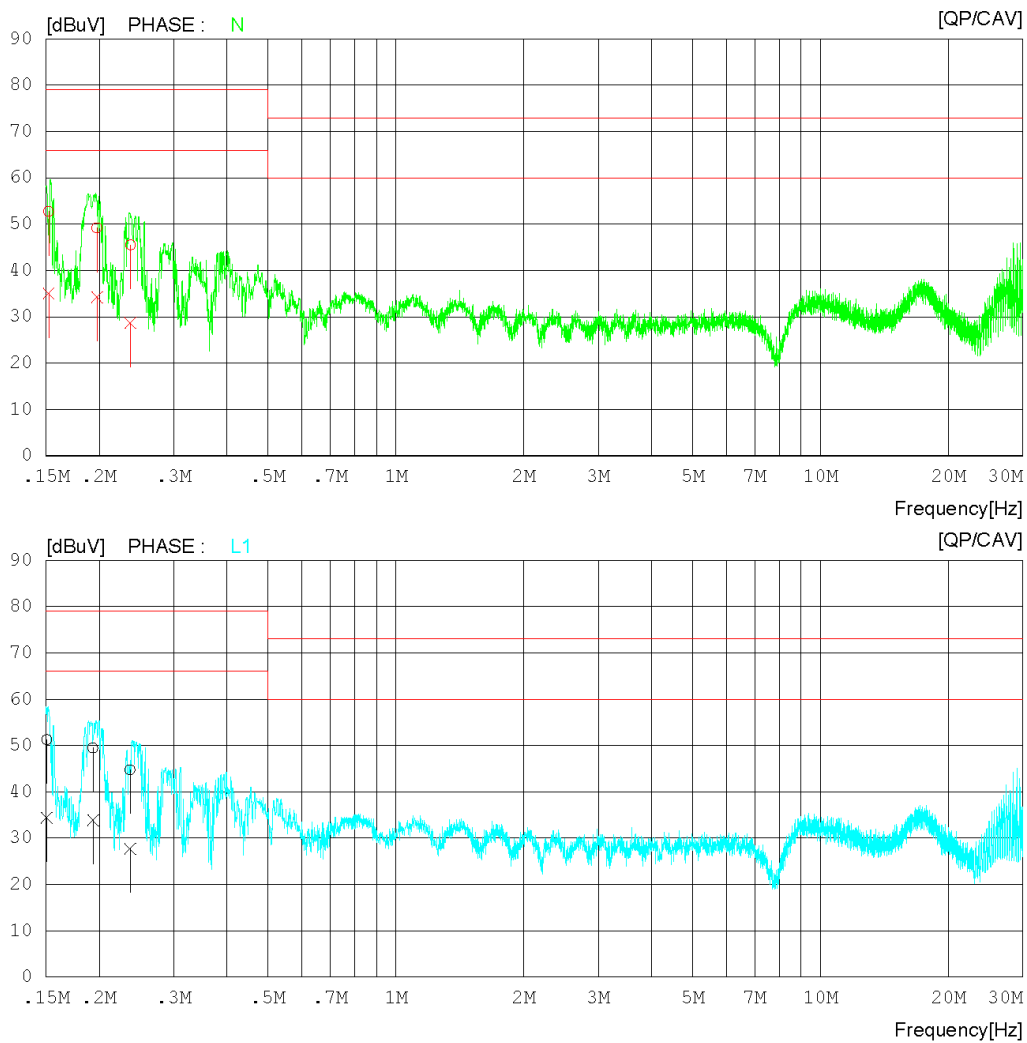
Results of Conducted Emission

Date 2019-07-12

Order/ No. DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi. 23 'C 53 % R.H.
Test condition

Memo

LIMIT : CISPR32_A QP
CISPR32_A AV



Results of Conducted Emission

Date 2019-07-12

Order/ No. DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi. 23 'C 53 % R.H.
Test condition

Memo

LIMIT : CISPR32_A QP
CISPR32_A AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	CAV [dBuV]		QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	
1	0.15209	42.81	25.09	9.95	52.76	35.04	79.00	66.00	26.24	30.96	N
2	0.19764	39.29	24.34	9.94	49.23	34.28	79.00	66.00	29.77	31.72	N
3	0.23726	35.59	18.75	9.95	45.54	28.70	79.00	66.00	33.46	37.30	N
4	0.15050	41.36	24.45	9.94	51.30	34.39	79.00	66.00	27.70	31.61	L1
5	0.19350	39.50	23.94	9.95	49.45	33.89	79.00	66.00	29.55	32.11	L1
6	0.23643	34.82	17.80	9.94	44.76	27.74	79.00	66.00	34.24	38.26	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 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	
	EUT Operation mode		1	
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(CISPR), Pub. 22 shown as below.				
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			5 th harmonic of the highest frequency or 40 GHz, whichever is lower	

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	ESR	ROHDE & SCHWARZ	101061	2019.01.30	2020.01.30
TRILOG BROADBAND TEST-ANTENNA WITH 6DB ATT	VULB9160	SCHWARZBECK	9160-3363	2018.09.17	2020.09.17
	8491B	HP	23831		
LOW NOISE PRE AMPLIFIER	MLA-010K01-B01-27	TSJ	1844539	2019.02.27	2020.02.27
EMI TEST RECEIVER	ESU	ROHDE & SCHWARZ	100469	2019.06.12	2020.06.12
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	2019.02.13	2021.02.13
				2019.01.02	2020.01.02
(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)	AC 120	Test Frequency (Hz)	60

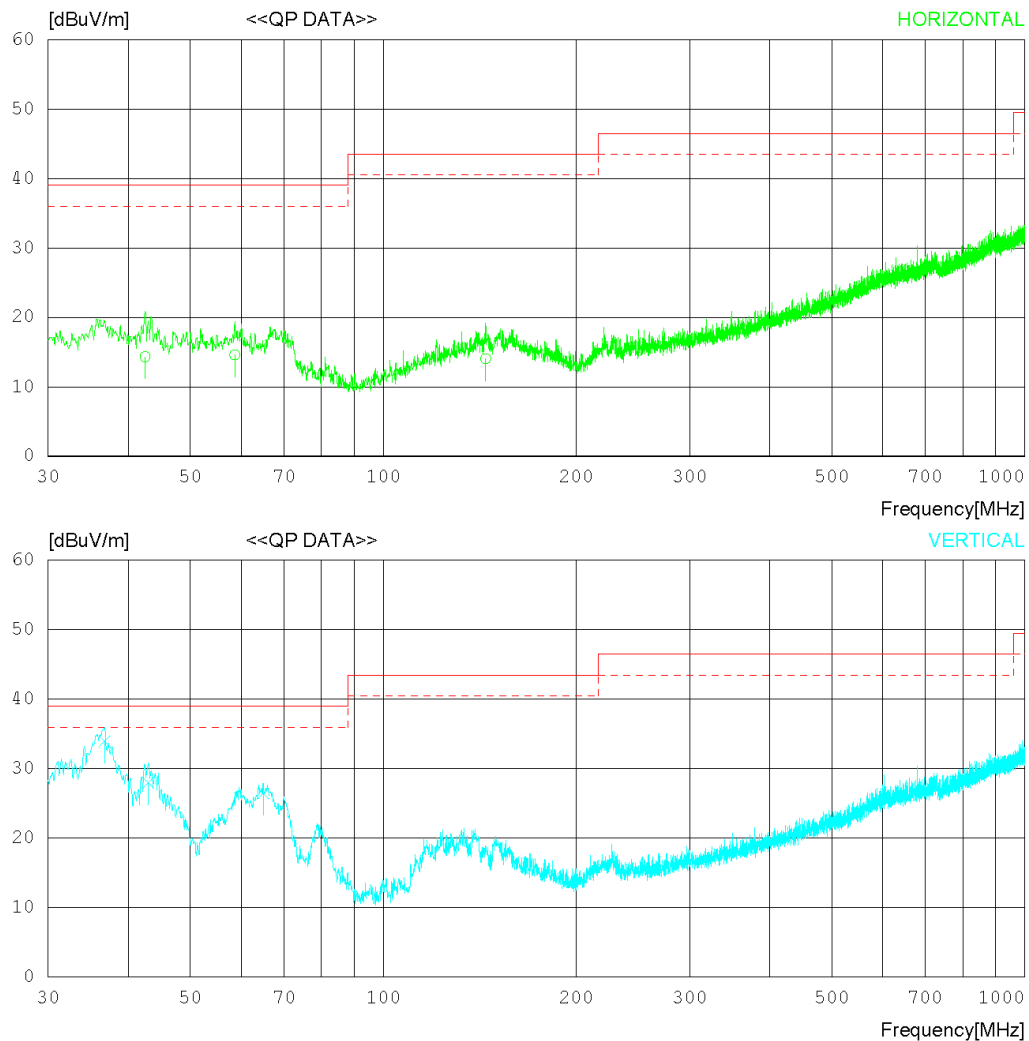
RADIATED EMISSION

Date 2019-07-12

Model Name DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi 23 'C 53 % R.H.
Test Condition

Memo

LIMIT : FCC Part15 Subpart.B Class A (10m)
MARGIN: 3 dB



RADIATED EMISSION

Date 2019-07-12

Model Name DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi 23'C 53 % R.H.
Test Condition

Memo

LIMIT : FCC Part15 Subpart.B Class A (10m)
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	42.489	22.90	19.90	2.06	30.54	14.32	39.00	24.68	329	230
2	58.615	22.80	19.97	2.31	30.49	14.59	39.00	24.41	310	200
3	144.336	23.00	18.29	2.90	30.15	14.04	43.50	29.46	283	275
----- Vertical -----										
4	36.790	42.30	20.23	1.97	30.55	33.95	39.00	5.05	400	171
5	42.974	36.60	19.86	2.07	30.54	27.99	39.00	11.01	126	267
6	64.920	36.20	18.33	2.40	30.46	26.47	39.00	12.53	133	309

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

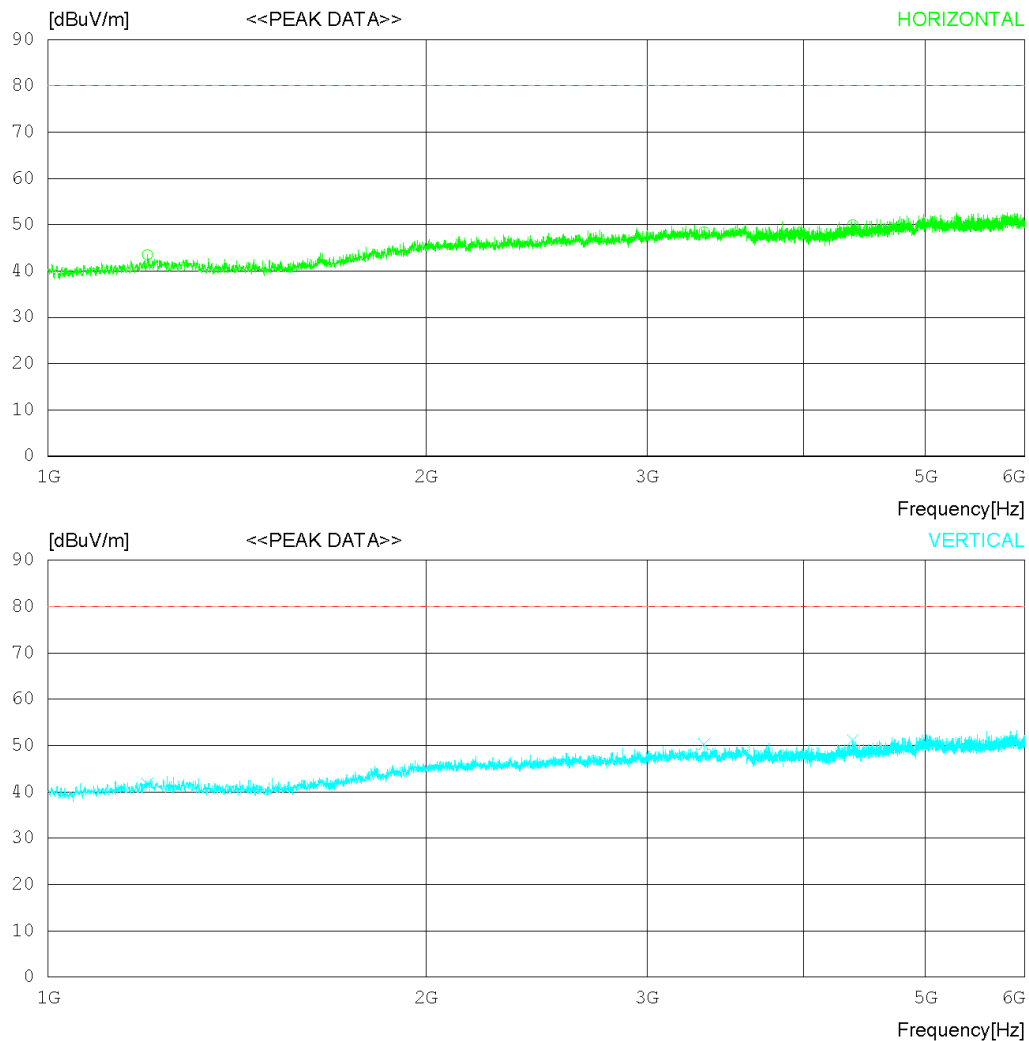
RADIATED EMISSION

Date 2019-07-29

Order No. DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi 26 'C 49 % R.H.
Test Condition

Memo

LIMIT : FCC Part15 Subpart.B Class A (3m) - GHz(Peak)
FCC Part15 Subpart.B Class A (3m) - GHz(Peak)



RADIATED EMISSION

Date 2019-07-29

Order No. DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi 26°C 49 % R.H.
Test Condition

Memo

LIMIT : FCC Part15 Subpart.B Class A (3m) - GHz(Peak)
FCC Part15 Subpart.B Class A (3m) - GHz(Peak)

No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	PEAK [dBuV]	FACTOR [dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	1200.000	45.60	28.80	4.75	35.64	43.51	80.0	36.49	400	344
2	3331.250	42.30	32.84	7.95	34.67	48.42	80.0	31.58	300	99
3	4376.250	40.90	33.75	9.75	34.45	49.95	80.0	30.05	100	63
----- Vertical -----										
4	1200.000	43.90	28.80	4.75	35.64	41.81	80.0	38.19	199	358
5	3331.250	44.20	32.84	7.95	34.67	50.32	80.0	29.68	400	101
6	4376.250	42.10	33.75	9.75	34.45	51.15	80.0	28.85	299	53

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

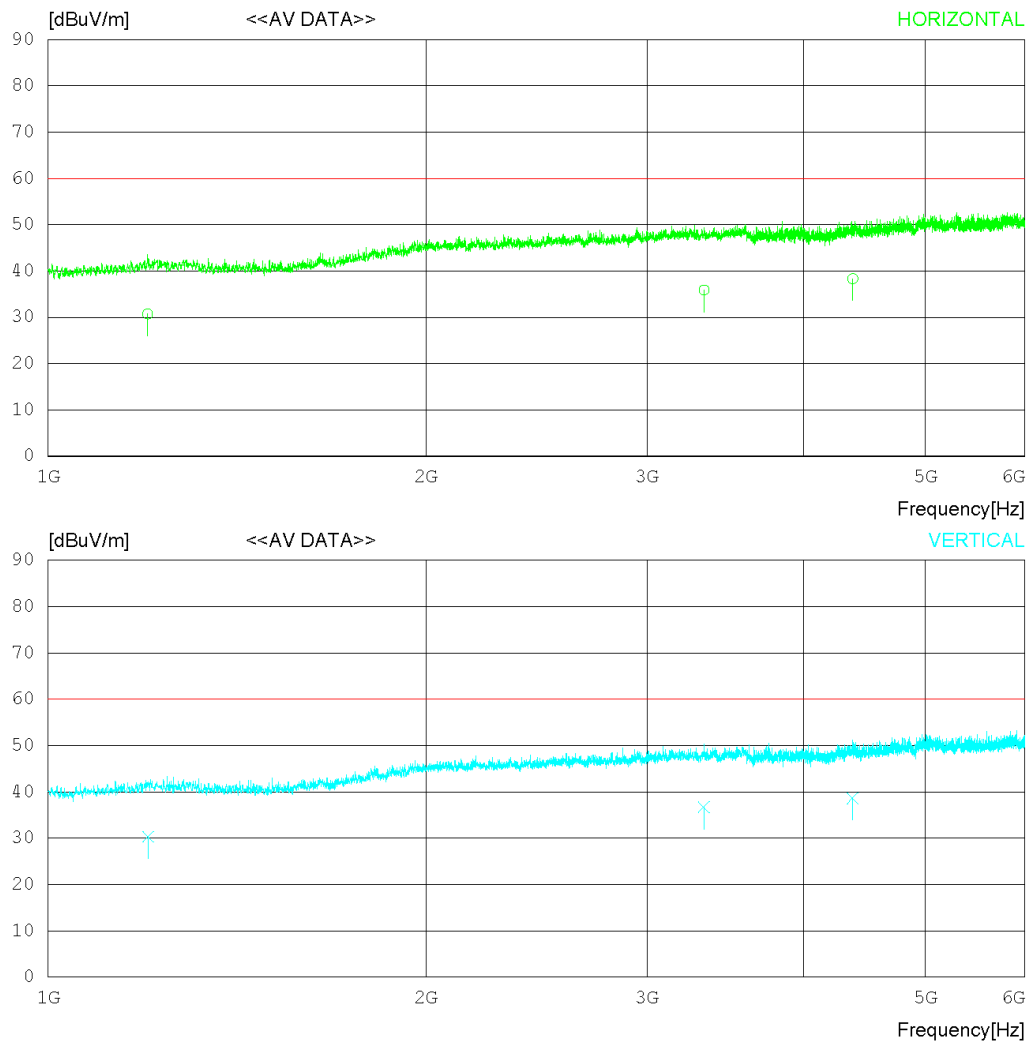
RADIATED EMISSION

Date 2019-07-29

Order No. DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi 26 'C 49 % R.H.
Test Condition

Memo

LIMIT : FCC Part15 Subpart.B Class A (3m) - GHz(Average)
FCC Part15 Subpart.B Class A (3m) - GHz(Average)



RADIATED EMISSION

Date 2019-07-29

Order No. DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi 26°C 49 % R.H.
Test Condition

Memo

LIMIT : FCC Part15 Subpart.B Class A (3m) - GHz(Average)
FCC Part15 Subpart.B Class A (3m) - GHz(Average)

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	1200.261	32.80	28.80	4.75	35.64	30.71	60.00	29.29	367	140
2	3331.254	29.80	32.84	7.95	34.67	35.92	60.00	24.08	312	289
3	4376.776	29.30	33.75	9.75	34.45	38.35	60.00	21.65	152	136
----- Vertical -----										
4	1201.370	32.40	28.80	4.75	35.64	30.31	60.00	29.69	178	108
5	3330.061	30.60	32.84	7.94	34.67	36.71	60.00	23.29	376	253
6	4375.180	29.60	33.75	9.75	34.45	38.65	60.00	21.35	282	116

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

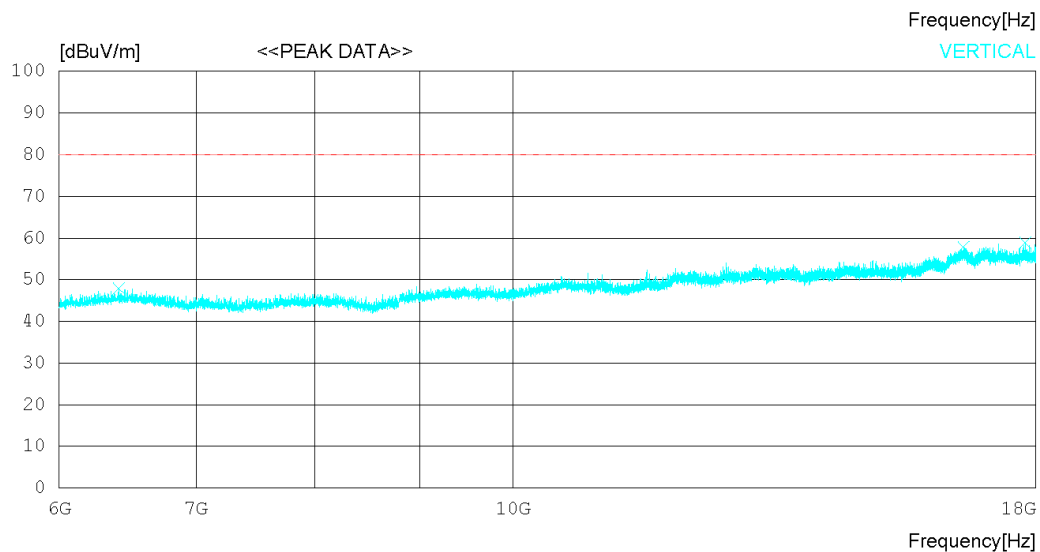
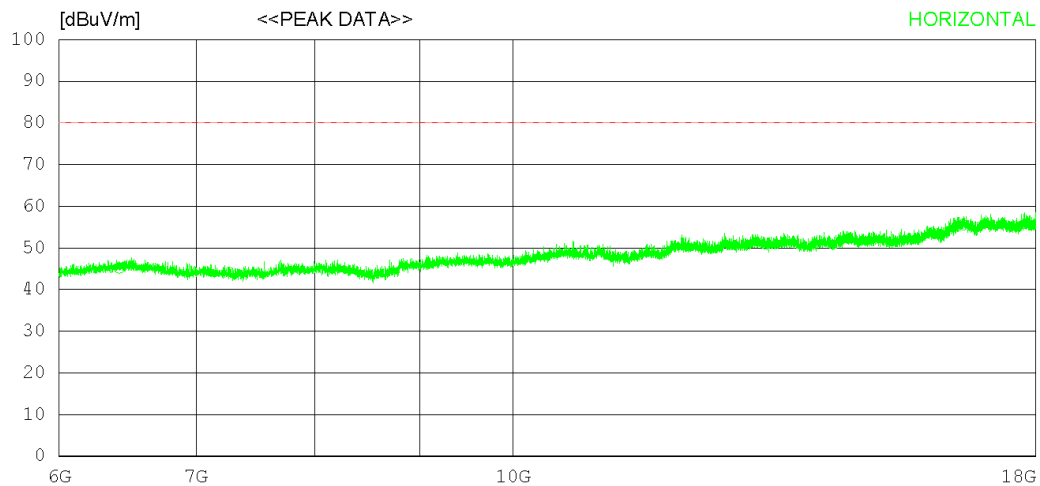
RADIATED EMISSION

Date 2019-07-29

Order No. DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi 26 'C 49 % R.H.
Test Condition

Memo

LIMIT : FCC Part15 Subpart.B Class A (3m) - GHz(Peak)
FCC Part15 Subpart.B Class A (3m) - GHz(Peak)



RADIATED EMISSION

Date 2019-07-29

Order No. DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi 26°C 49 % R.H.
Test Condition

Memo

LIMIT : FCC Part15 Subpart.B Class A (3m) - GHz(Peak)
FCC Part15 Subpart.B Class A (3m) - GHz(Peak)

No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	PEAK [dBuV]	FACTOR [dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	6419.250	32.60	35.52	11.78	34.79	45.11	80.0	34.89	100	113
2	16590.750	26.00	41.64	22.26	34.41	55.49	80.0	24.51	200	0
3	17784.750	27.10	41.36	21.27	33.91	55.82	80.0	24.18	100	358
----- Vertical -----										
4	6419.250	35.40	35.52	11.78	34.79	47.91	80.0	32.09	100	87
5	16590.750	28.30	41.64	22.26	34.41	57.79	80.0	22.21	199	358
6	17784.750	30.20	41.36	21.27	33.91	58.92	80.0	21.08	100	0

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

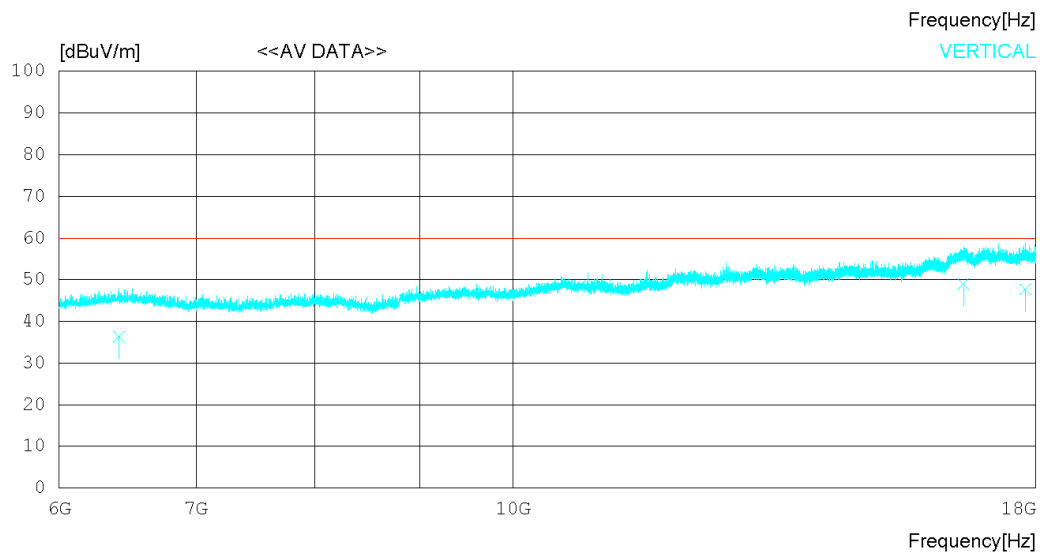
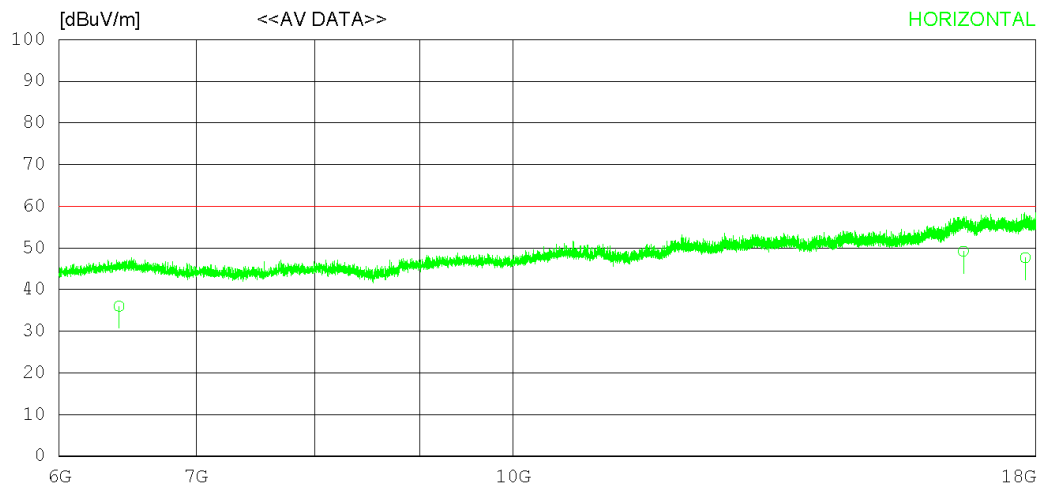
RADIATED EMISSION

Date 2019-07-29

Order No. DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi 26 'C 49 % R.H.
Test Condition

Memo

LIMIT : FCC Part15 Subpart.B Class A (3m) - GHz(Average)
FCC Part15 Subpart.B Class A (3m) - GHz(Average)



RADIATED EMISSION

Date 2019-07-29

Order No. DTNC1906-05067
Power Supply AC 120 V 60 Hz
Temp/Humi 26°C 49 % R.H.
Test Condition

Memo

LIMIT : FCC Part15 Subpart.B Class A (3m) - GHz(Average)
FCC Part15 Subpart.B Class A (3m) - GHz(Average)

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	6419.125	23.50	35.52	11.78	34.79	36.01	60.00	23.99	109	313
2	16590.560	19.70	41.64	22.25	34.41	49.18	60.00	10.82	222	210
3	17784.790	18.90	41.36	21.27	33.91	47.62	60.00	12.38	162	184
----- Vertical -----										
4	6419.270	23.80	35.52	11.78	34.79	36.31	60.00	23.69	127	178
5	16590.730	19.50	41.64	22.25	34.41	48.98	60.00	11.02	188	285
6	17784.570	19.00	41.36	21.27	33.91	47.72	60.00	12.28	136	89

Calculation

Result(dBuV/m) : 30 ~ 1G : Reading Value(dBuV) + Cable loss(dB) - Pre amplifier gain(dB) + Ant. Factor(dB)
1 ~ 6 G : Ant. Factor = Ant. Factor - Pre amplifier gain
Margin(dB) : Limit(dBuV/m) - Result(dBuV/m)

8. Revision History

Date	Description	Revised By	Reviewed By
Jul. 31. 2019	Initial report	Taehyun Choi	KyoungHwan Bae
Sep. 02. 2019	Change FCC ID (2ATXA-S16N-X18K-7WN → 2ATXA-SA163PLUS)	Taehyun Choi	KyoungHwan Bae

-End of test report-