

TEST REPORT

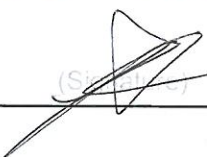
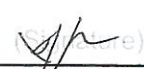


DT&C Co., Ltd.

42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042
Tel : 031-321-2664, Fax : 031-321-1664

1. Report No. : DREFCC2008-0208
2. Client / Applicant
 - Name : Bluebird Inc.
 - Address : 3F, 115, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea
3. Use of Report : Grant of Certification
4. Product Name / Model Name : Enterprise-Value Full Touch Handheld Computer / VF550
(FCC ID : SS4VF550)
5. Test Standard : ANSI C 63.4 : 2014
FCC Part 15 Subpart B
(Communications Rcvr for use w/ licensed Tx and CBs(CXX))
6. Date of Test : Aug. 02. 2020
7. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing
8. Testing Environment : Temperature (23) °C , Humidity (54) % R.H.
9. Test Result : Refer to the attached Test Result

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Affirmation	Tested by	Reviewed by
	Name : ChanGeun Lee 	Name : KyoungHwan Bae 

Aug. 21. 2020

DT&C Co., Ltd.

Not abided by 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 23 rd , 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-14076, R-4180, R-4496, T-1442, G-10338, G-10754, G-10815, G-20051	Registered
Certification	Korea	KC	KR0034	Designation
	Germany	TUV	CARAT 089112 0006 Rev.00	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	Bluebird Inc. 3F, 115, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea
Manufacturer	Bluebird Inc. 3F, 115, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea
Factory 1	Bluebird Inc. (SSang-young IT Twin tower-B 7~8F), 531, Dunchon-daero, Jungwon-gu, Seongnam-si, Gyeonggi-do, Korea
Factory 2	TOP INTERCUBE ELECTRONICS VINA CO., LTD (TEV) Lot C1, Ba thien II Industrial park, Thien Ke Ward, Binh Xuyen District, Vinh Phuc Province, Vietnam
Product Name	Enterprise-Value Full Touch Handheld Computer
Model Name	VF550
Add Model Name	None
Add Model Difference	None
Maximum Internal Frequency	1,800 MHz
Rated Power	DC 3.85 V
FCC ID	SS4VF550
Remarks	Wireless Frequency - WCDMA 2 : (1,852.4 ~ 1,907.6) MHz - WCDMA 5 : (826.4 ~ 846.6) MHz - LTE Band 2 : (1,850.7 ~ 1,909.3) MHz - LTE Band 4 : (1,710.7 ~ 1,799.3) MHz - LTE Band 7 : Tx (2,500 ~ 2,570) MHz, Rx (2,620 ~ 2,690) MHz - GSM 850 : Tx (824.2 ~ 848.8) MHz, Rx (869.2 ~ 893.8) MHz - GSM 1900 : Tx (1,850.2 ~ 1909.8) MHz, Rx (1,930.2 ~ 1989.8) MHz - WIFI 2.4 G : (2,412 ~ 2,462) MHz - WIFI 5 G : (5,150 ~ 5,850) MHz

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	WCDMA 5	The EUT was tested while operating in WCDMA 5 band Rx mode.
2	GSM 850	The EUT is tested in a state of continuously transmitting and receiving data. The tester checks Rx quality, using univasal radio communication tester.
* WCDMA 5, GSM850 bands that tune in the range of 30 MHz - 960 MHz are investigated. Only the worst case(WCDMA 5 band) emissions are reported.		

4.3 Test Configuration Mode

No.	Mode	Description
1	WCDMA 5	EUT connects to Earphones EUT connects to Micro SD Card
2	GSM 850	EUT connects to Earphones EUT connects to Micro SD Card

4.4 Supported Equipment

Used*	Product Type	Manufacturer	Model	Remarks
AE	Micro SD Card	RIDATA	2GB	Y02GA53M8D3129028TW
AE	Earphones	N/A	N/A	SONY
*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
Micro SD Card Slot	I/O	-	-	-	None
AUX	I/O	1.9	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 (Hz)	Phases	Remarks
1	DC 3.85	-	-	Battery

5. Test Summary

Test Items	Applied Standards	Results
Conducted Disturbance	ANSI C63.4 : 2014	N/A
Radiated Disturbance	ANSI C63.4 : 2014	C
C=Comply N/C=Not Comply N/T=Not Tested N/A=Not Applicable		
Note 1) These test are not required because EUT is portable equipment.		

-Conducted Disturbance

Frequency [MHz]	Phase	Result [dB μ V]	Detector	Limit [dB μ V]	Margin [dB]
-	-	-	-	-	-

-Radiated Disturbance

Frequency [MHz]	Pol.	Result [dB μ V/m]	Detector	Limit [dB μ V/m]	Margin [dB]
39920.350	V	45.96	Cispr - Average	54.00	8.04

6. Test Environment

Test Items	Test date (YYYY-MM-DD)	Temp. (°C)	Humidity (% R.H.)	Pressure (kPa)
Radiated Disturbance	2020-08-02	23	54	-

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.			Not Applicable		
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	N/A			
	EUT Operation mode	N/A			
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
-	-	-	-	-	-

Mains terminal disturbance voltage _ Measurement data			
Test configuration mode	N/A	EUT Operation mode	N/A
Test voltage (V)	N/A	Test Frequency (Hz)	N/A

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 – 40 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	
	EUT Operation mode		1	
Radiated Disturbance below 1 000 MHz				
Frequency range (MHz)	Quasi-peak limit dBµV/m			
	Class A		Class B	
	3 m distance	10 m distance	3 m distance	
30 to 88	49.1	39.1	40	
88 to 216	53.5	43.5	43.5	
216 to 960	56.4	46.4	46	
960 to 1 000	59.5	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		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	ESU40	ROHDE&SCHWARZ	100525	2019.12.20	2020.12.20
TRILOG BROAD BAND ANTENNA	VULB9160	SCHWARZBECK	9160-3339	2018.10.22	2020.10.22
6DB ATTENUATOR	8491B	HP	18403	2018.10.22	2020.10.22
LOW NOISE PRE AMPLIFIER	MLA-100K01-B01-26	TSJ	1252741	2020.02.13	2021.02.13
HORN ANTENNA	3117	ETS-LINDGREN	00152093	2020.03.26	2021.03.26
PRE AMPLIFIER	8449B	H.P	3008A00887	2019.08.26	2020.08.26
HORN ANTENNA WITH PREAMPLIFIER	EM-6969	ELECTRO-METRICS	156	2019.02.13	2021.02.13
	MLA-0618-B03-34	TSJ	1785642	2019.12.31	2020.12.31
HORN ANTENNA WITH PREAMPLIFIER	3116C	ETS-LINDGREN	00213177	2019.12.12	2020.12.12
	JS44-18004000-35-8P	L3 NARDA-MITEQ	2046884	2019.11.04	2020.11.04
(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)	Battery	Test Frequency (Hz)	-

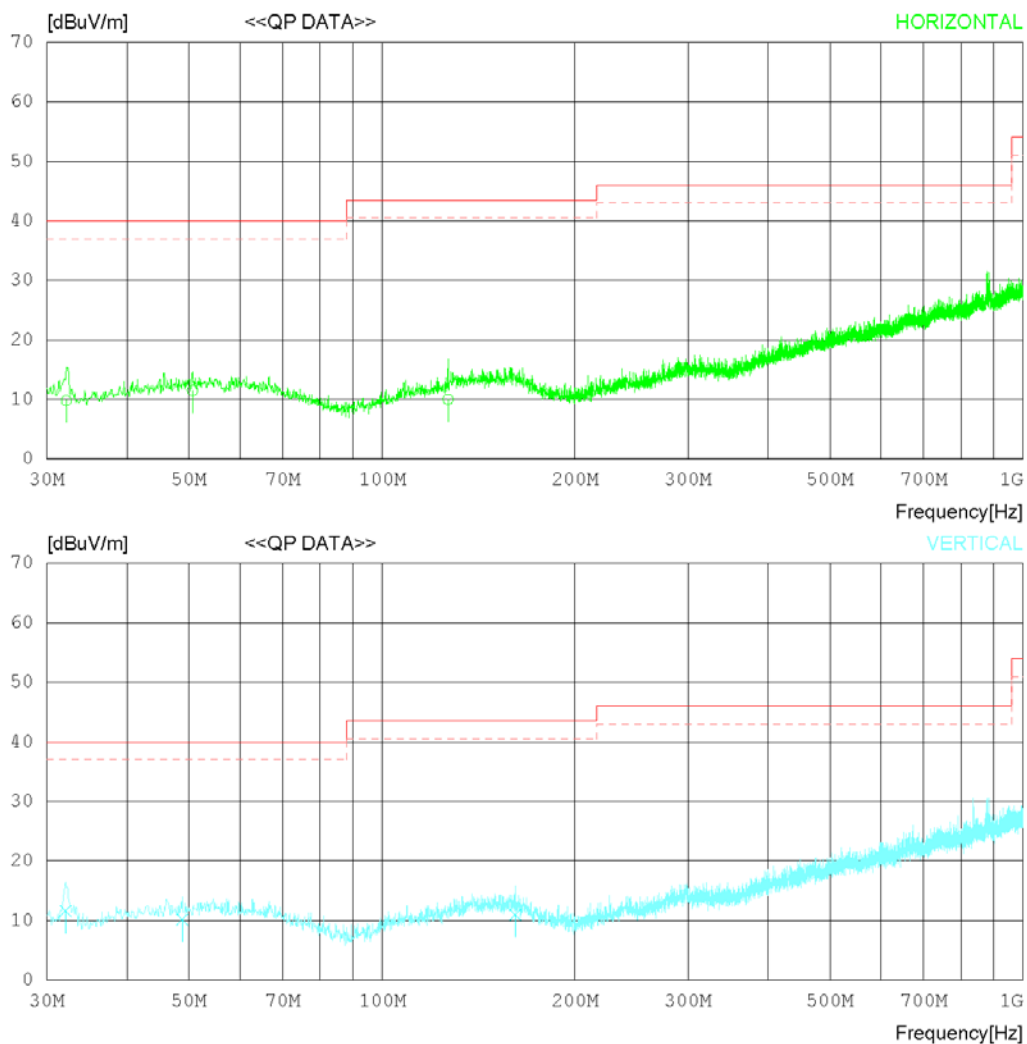
RADIATED EMISSION

Date 2020-08-02

Order No. DTNC2006-05350
Power Supply Battery
Temp/Humi 23 'C 54 % R.H.
Test Condition WCDMA 5

Memo

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



RADIATED EMISSION

Date 2020-08-02

Order No. DTNC2008-05350
Power Supply Battery
Temp/Humi 23 °C 54 %R.H.
Test Condition WCDMA 5

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	32.183	20.30	15.42	0.64	26.53	9.83	40.00	30.17	101	144
2	50.613	19.10	18.30	0.74	26.62	11.52	40.00	28.48	213	213
3	126.756	17.90	17.64	1.28	26.80	10.02	43.50	33.48	203	352
----- Vertical -----										
4	32.061	22.10	15.41	0.63	26.53	11.61	40.00	28.39	100	0
5	48.794	17.90	18.14	0.73	26.61	10.16	40.00	29.84	102	0
6	161.311	17.50	18.80	1.40	26.73	10.97	43.50	32.53	109	105

Radiated disturbance at (1 ~ 6) GHz _ Peak Measurement data			
Test configuration mode	1	EUT Operation mode	1
Test voltage (V)	Battery	Test Frequency (Hz)	-

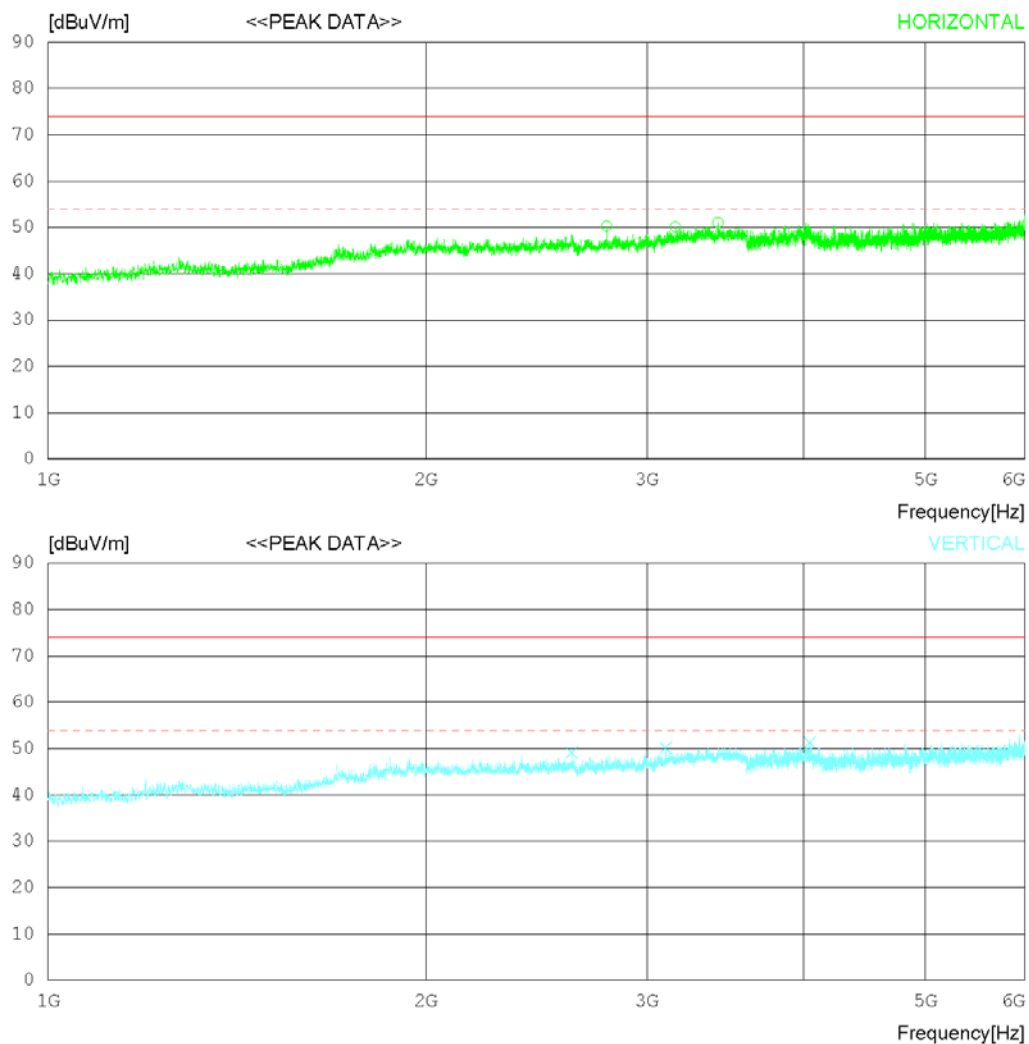
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Date 2020-08-02

Order No. DTNC2006-05350
Power Supply Battery
Temp/Humi 23 'C 54 %.R.H.
Test Condition WCDMA 5

Memo

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



RADIATED EMISSION

Date 2020-08-02

Order No. DTNC2006-05350
Power Supply Battery
Temp/Humi 23 °C 54 %R.H.
Test Condition WCDMA 5

Memo

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

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	2786.250	45.00	32.45	7.65	34.80	50.30	74.0	23.7	209	302
2	3160.000	43.40	33.12	8.32	34.71	50.13	74.0	23.87	213	0
3	3416.250	43.50	33.40	8.52	34.35	51.07	74.0	22.93	305	126
----- Vertical -----										
4	2613.750	44.20	32.20	7.41	34.70	49.11	74.0	24.89	101	358
5	3105.625	43.90	33.10	8.00	34.78	50.22	74.0	23.78	100	86
6	4043.750	41.80	33.50	9.60	33.60	51.30	74.0	22.7	102	358

Radiated disturbance at (1 ~ 6) GHz _ Average Measurement data			
Test configuration mode	1	EUT Operation mode	1
Test voltage (V)	Battery	Test Frequency (Hz)	-

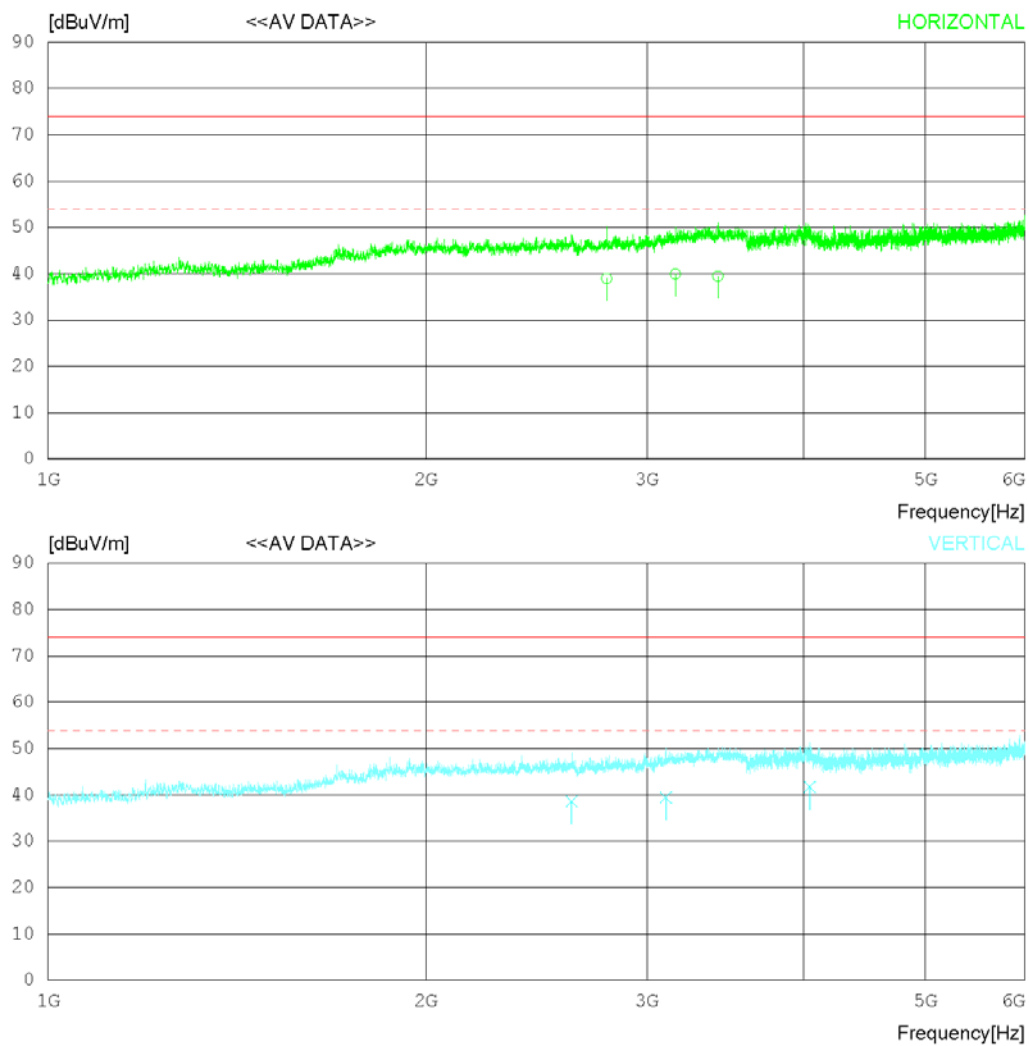
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Power Supply Battery
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Memo

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



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Test Condition WCDMA 5

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m) - GHz(Peak)
FCC Part15 Subpart.B Class B (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	2786.210	33.70	32.44	7.65	34.80	38.99	54.00	15.01	208	307
2	3160.139	33.20	33.12	8.32	34.71	39.93	54.00	14.07	211	0
3	3416.270	31.90	33.40	8.52	34.35	39.47	54.00	14.53	309	33
----- Vertical -----										
4	2613.720	33.70	32.20	7.41	34.70	38.61	54.00	15.39	100	356
5	3105.615	33.10	33.10	8.00	34.78	39.42	54.00	14.58	102	93
6	4043.770	32.20	33.50	9.59	33.60	41.69	54.00	12.31	101	352

Radiated disturbance at (6 ~ 18) GHz _ Peak Measurement data			
Test configuration mode	1	EUT Operation mode	1
Test voltage (V)	Battery	Test Frequency (Hz)	-

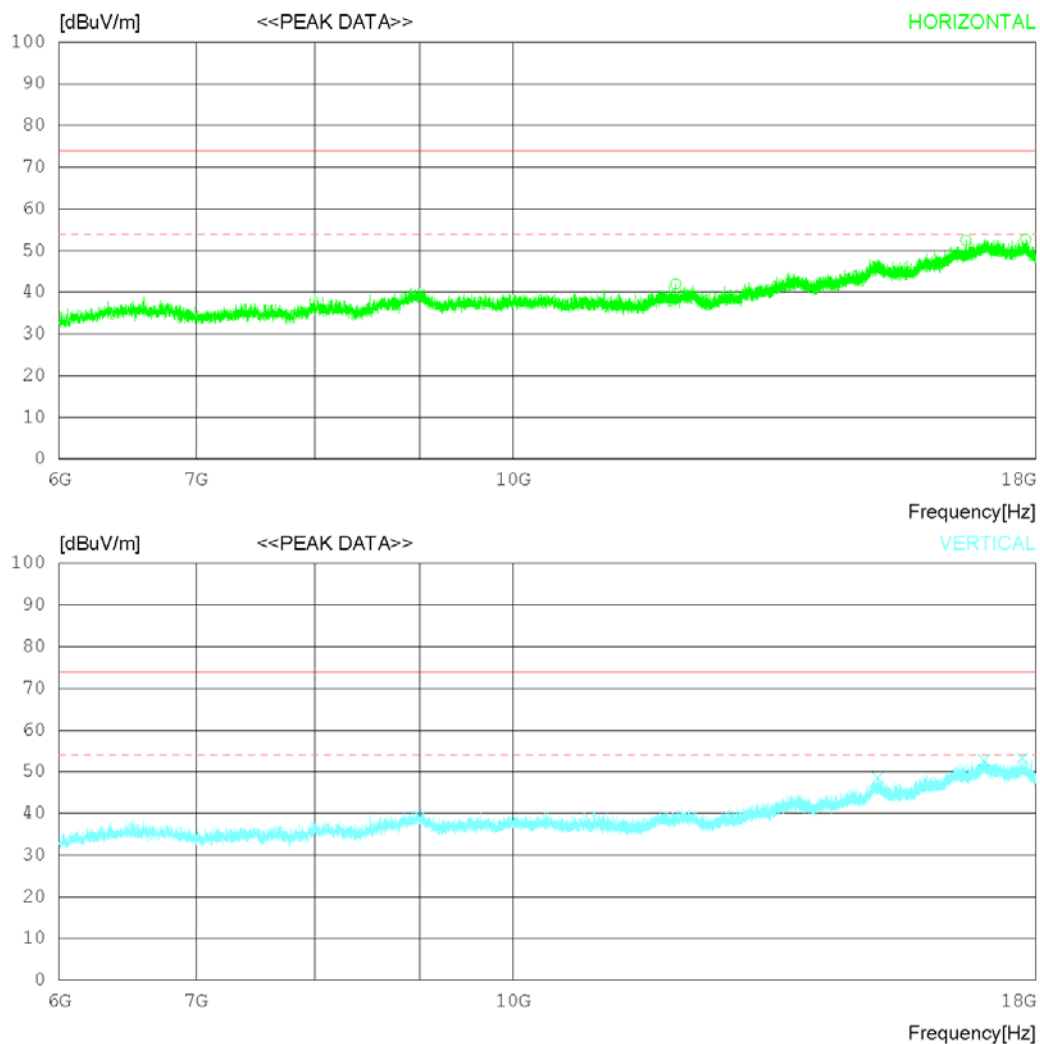
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LIMIT : FCC Part15 Subpart.B Class B (3m) - GHz(Peak)
FCC Part15 Subpart.B Class B (3m) - GHz(Average)



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Test Condition WCDMA 5

Memo

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

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	12006.750	31.50	33.46	14.70	37.71	41.95	74.0	32.05	102	358
2	16637.250	29.70	37.14	21.81	36.18	52.47	74.0	21.53	101	23
3	17797.500	29.20	38.16	22.80	37.48	52.68	74.0	21.32	100	322
----- Vertical -----										
4	15071.250	29.40	35.52	20.54	36.94	48.52	74.0	25.48	102	182
5	16988.250	27.80	37.54	23.71	36.39	52.66	74.0	21.34	103	19
6	17730.750	29.80	38.11	22.69	37.37	53.23	74.0	20.77	106	358

Radiated disturbance at (6 ~ 18) GHz _ Average Measurement data			
Test configuration mode	1	EUT Operation mode	1
Test voltage (V)	Battery	Test Frequency (Hz)	-

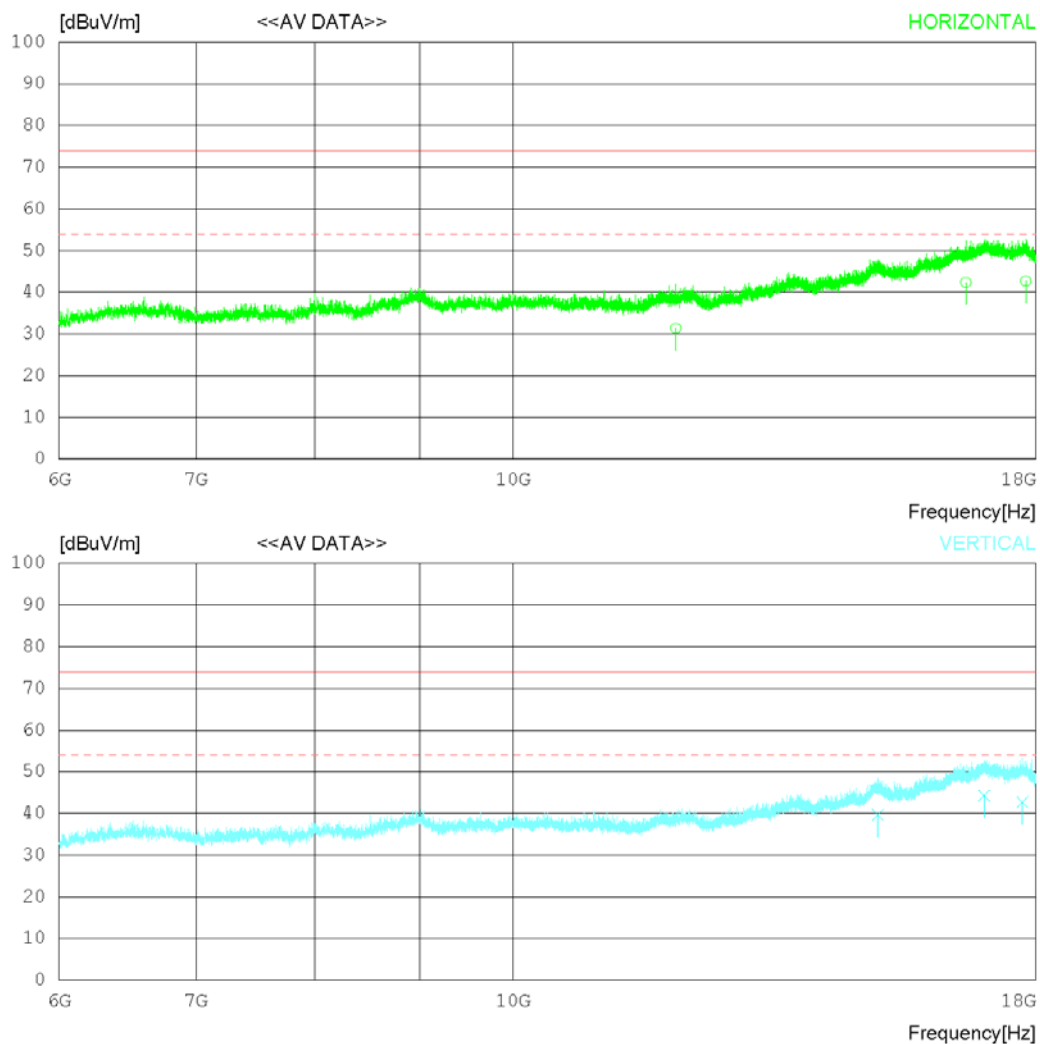
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LIMIT : FCC Part15 Subpart.B Class B (3m) - GHz(Peak)
FCC Part15 Subpart.B Class B (3m) - GHz(Average)



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LIMIT : FCC Part15 Subpart.B Class B (3m) - GHz(Peak)
FCC Part15 Subpart.B Class B (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	12006.780	20.90	33.46	14.70	37.71	31.35	54.00	22.65	100	343
2	16637.230	19.60	37.14	21.81	36.18	42.37	54.00	11.63	100	36
3	17797.560	19.20	38.16	22.80	37.48	42.68	54.00	11.32	100	334
----- Vertical -----										
4	15071.210	20.50	35.52	20.54	36.94	39.62	54.00	14.38	101	196
5	16988.360	19.40	37.54	23.71	36.39	44.26	54.00	9.74	101	22
6	17730.710	19.20	38.11	22.69	37.37	42.63	54.00	11.37	105	351

Radiated disturbance at (18 ~ 40) GHz _ Peak Measurement data			
Test configuration mode	1	EUT Operation mode	1
Test voltage (V)	Battery	Test Frequency (Hz)	-

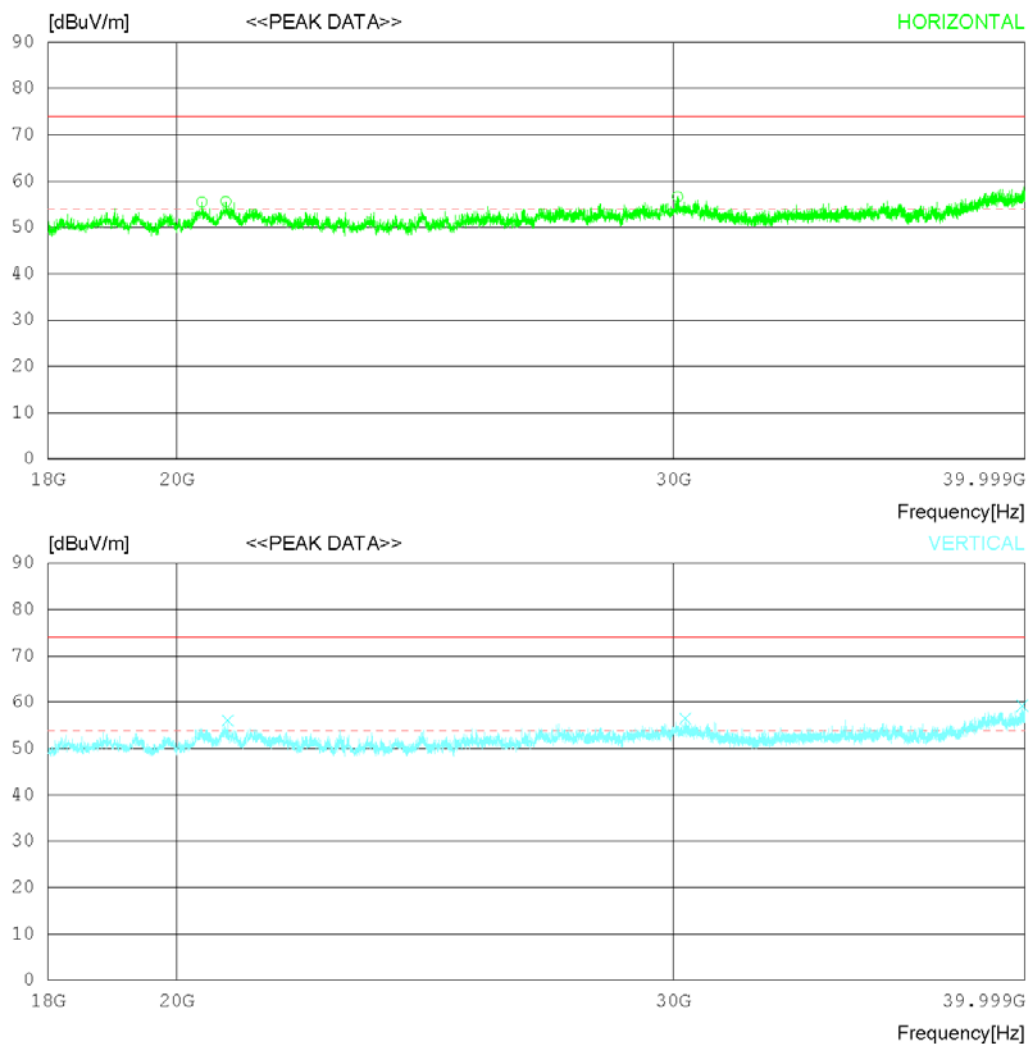
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FCC Part15 Subpart.B Class B (3m) - GHz(Average)



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Memo

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

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	20409.000	43.90	45.40	19.37	53.18	55.49	74.0	18.51	207	138
2	20816.000	43.20	45.60	20.16	53.37	55.59	74.0	18.41	208	0
3	30113.750	39.40	47.50	21.94	52.21	56.63	74.0	17.37	201	8
----- Vertical -----										
4	20854.500	43.60	45.60	20.24	53.38	56.06	74.0	17.94	106	32
5	30306.250	39.10	47.50	22.06	52.22	56.44	74.0	17.56	105	358
6	39920.250	37.90	49.14	24.42	52.20	59.26	74.0	14.74	103	358

Radiated disturbance at (18 ~ 40) GHz _ Average Measurement data			
Test configuration mode	1	EUT Operation mode	1
Test voltage (V)	Battery	Test Frequency (Hz)	-

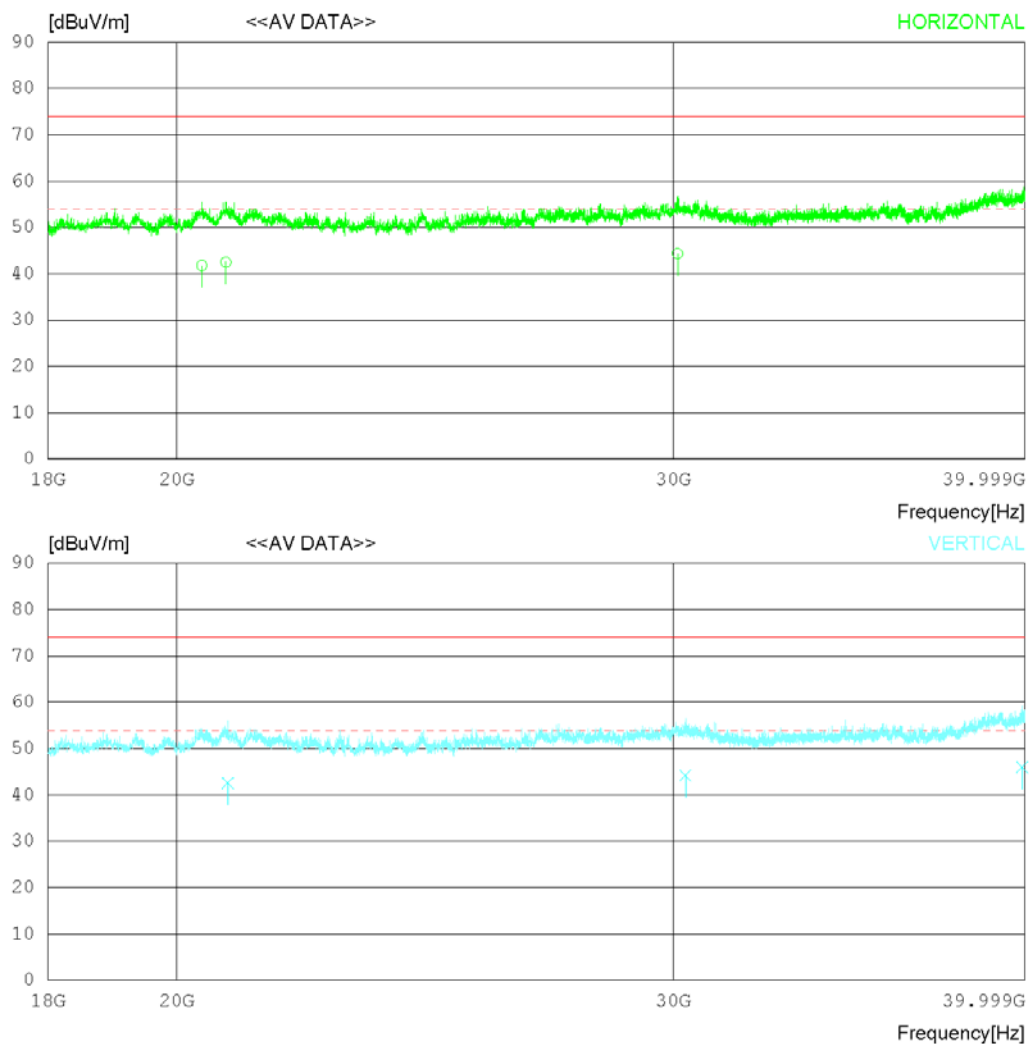
RADIATED EMISSION

Date 2020-08-02

Order No. DTNC2006-05350
Power Supply Battery
Temp/Humi 23 'C 54 %.R.H.
Test Condition WCDMA 5

Memo

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



RADIATED EMISSION

Date 2020-08-02

Order No. DTNC2006-05350
Power Supply Battery
Temp/Humi 23 °C 54 %R.H.
Test Condition WCDMA 5

Memo

LIMIT : FCC Part15 Subpart.B Class B (3m) - GHz(Peak)
FCC Part15 Subpart.B Class B (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	20409.010	30.20	45.40	19.37	53.18	41.79	54.00	12.21	206	141
2	20816.270	30.10	45.60	20.16	53.37	42.49	54.00	11.51	211	0
3	30113.720	27.10	47.50	21.94	52.21	44.33	54.00	9.67	197	0
----- Vertical -----										
4	20854.580	30.10	45.60	20.24	53.38	42.56	54.00	11.44	108	41
5	30306.170	26.90	47.50	22.06	52.22	44.24	54.00	9.76	104	352
6	39920.350	24.60	49.14	24.42	52.20	45.96	54.00	8.04	102	355

Calculation

Result(dBuV/m) : Reading Value(dBuV) + Cable loss(dB) - Pre amplifier gain(dB) + Ant. Factor(dB)
Margin : Limit(dBuV/m) - Result(dBuV/m)

8. Revision History

Date	Description	Revised By	Reviewed By
Aug. 21. 2020	Initial report	ChanGeun Lee	KyoungHwan Bae

-End of test report-