

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 : DRTFCC2102-0020

2. Customer

• Name : BIONEER CORPORATION

• Address : 8-11, Munpyeongseo-ro, Daedeok-gu, Daejeon, South Korea 34302

3. Use of Report : FCC Certification

4. Product Name / Model Name : Multi-Well Sample Loader / AccuLoader™

FCC ID : 2AYOX-A5251

5. FCC Regulation(s): Part 15.247

Test Method Used : KDB558074 D01v05r02, ANSI C63.10-2013

6. Date of Test : 2021.01.12 ~ 2021.01.22

7. Location of Test : Permanent Testing Lab On Site Testing

8. Testing Environment : Refer to appended test report.

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 Name : JungWoo Kim 	Reviewed by Name : JaeJin Lee 
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2021. 02. 10.

DT&C Co., Ltd.

This test report is a general report that does not use the KOLAS accreditation mark and
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

Test Report Version

Test Report No.	Date	Description	Revised by	Reviewed by
DRTFCC2102-0020	Feb. 10, 2021	Initial issue	JungWoo Kim	JaeJin Lee

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1. General Information

1.1 Testing Laboratory

DT&C Co., Ltd.

The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042.

The test site complies with the requirements of § 2.948 according to ANSI C63.4-2014.

- FCC & ISED MRA Designation No. : KR0034

- ISED#: 5740A

www.dtnc.net

Telephone	:	+ 82-31-321-2664
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1.2 Test Environment

Ambient Condition

▪ Temperature	+20 °C ~ +24 °C
▪ Relative Humidity	30 % ~ 40 %

1.3 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C63.4-2014 and ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

Test items	Measurement uncertainty
AC power-line conducted emission	3.6 dB (The confidence level is about 95 %, $k = 2$)
Radiated emission (1 GHz Below)	4.9 dB (The confidence level is about 95 %, $k = 2$)
Radiated emission (1 GHz ~ 18 GHz)	5.1 dB (The confidence level is about 95 %, $k = 2$)
Radiated emission (18 GHz Above)	5.3 dB (The confidence level is about 95 %, $k = 2$)

1.4 Details of Applicant

Applicant Name	BIONEER CORPORATION
Address	8-11, Munpyeongseo-ro, Daedeok-gu, Daejeon, South Korea 34302

1.5 Description of EUT

EUT	Multi-Well Sample Loader
Model Name	AccuLoader™
Add Model Name	NA
Power Supply	DC 24 V
Frequency Range	2 402 MHz ~ 2 480 MHz
Modulation Technique	GFSK
Antenna Specification	Antenna Type: Chip Antenna Gain: 3.5 dBi (PK)

1.6 Declaration by the applicant / manufacturer

N/A

1.7 Test Equipment List

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	20/12/16	21/12/16	MY48011700
Spectrum Analyzer	Agilent Technologies	N9020A	20/06/24	21/06/24	US47360812
DC Power Supply	SM techno	SDP30-5D	20/06/24	21/06/24	305DMG305
Multimeter	FLUKE	17B	20/12/16	21/12/16	26030065WS
Signal Generator	Rohde Schwarz	SMBV100A	20/12/16	21/12/16	255571
Signal Generator	ANRITSU	MG3695C	20/12/16	21/12/16	173501
Thermohygrometer	BODYCOM	BJ5478	20/12/16	21/12/16	120612-1
Thermohygrometer	BODYCOM	BJ5478	20/12/16	21/12/16	120612-2
Thermohygrometer	BODYCOM	BJ5478	20/07/01	21/07/01	N/A
BILOG ANTENNA	Schwarzbeck	VULB 9160	20/12/16	21/12/16	9160-3362
Horn Antenna	ETS-Lindgren	3117	20/10/23	21/10/23	00143278
PreAmplifier	tsj	MLA-0118-B01-40	20/12/16	21/12/16	1852267
PreAmplifier	H.P	8447D	20/12/16	21/12/16	2944A07774
High Pass Filter	Wainwright Instruments	WHKX12-935-1000-15000-40SS	20/06/24	21/06/24	8
High Pass Filter	Wainwright Instruments	WHKX10-2838-3300-18000-60SS	20/06/24	21/06/24	1
High Pass Filter	Wainwright Instruments	WHNX8.0/26.5-6SS	20/06/24	21/06/24	3
Attenuator	Hefei Shunze	SS5T2.92-10-40	20/06/24	21/06/24	16012202
Attenuator	SRTechnology	F01-B0606-01	20/06/24	21/06/24	13092403
Attenuator	Aeroflex/Weinschel	56-3	20/06/24	21/06/24	Y2370
EMI Receiver	ROHDE&SCHWARZ	ESW44	20/10/16	21/10/16	101645
PULSE LIMITER	Rohde Schwarz	ESH3-Z2	20/08/25	21/08/25	101333
LISN	SCHWARZBECK	NSLK 8128 RC	20/10/23	21/10/23	8128 RC-387
Cable	DT&C	Cable	21/01/08	22/01/08	G-01
Cable	Radiall	Cable	21/01/08	22/01/08	G-02
Cable	Radiall	Cable	21/01/08	22/01/08	G-03
Cable	DT&C	Cable	21/01/08	22/01/08	G-04
Cable	Radiall	Cable	21/01/08	22/01/08	M-01
Cable	Radiall	Cable	21/01/08	22/01/08	M-02
Cable	Junkosha	Cable	21/01/08	22/01/08	M-05
Cable	Radiall	Cable	21/01/08	22/01/08	M-09
Cable	Radiall	Cable	21/01/08	22/01/08	RF-92
Test Software	tsj	Radiated Emission Measurement	NA	NA	Version 2.00.0177
Test Software	tsj	Noise Terminal Measurement	NA	NA	Version 2.00.0170

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.

Note2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.

1.8 Summary of Test Results

FCC Part	Parameter	Limit	Test Condition	Status Note 1
15.247(a)	6 dB Bandwidth	> 500 kHz	Conducted	NA Note 2
15.247(b)	Transmitter Output Power	< 1 Watt		NA Note 2
15.247(d)	Out of Band Emissions / Band Edge	20 dBc in any 100 kHz BW		NA Note 2
15.247(e)	Transmitter Power Spectral Density	< 8 dBm/3 kHz		NA Note 2
15.247(d) 15.205 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	FCC Part 15.209 limits (Reference to section 3.1)	Radiated	C
15.207	AC Line Conducted Emissions	FCC Part 15.207 limits (Reference to section 3.2)	AC Line Conducted	C
15.203	Antenna Requirements	FCC Part 15.203 (Reference to section 4)	-	C

Note 1: **C**=Comply **NC**=Not Comply **NT**=Not Tested **NA**=Not Applicable

Note 2: These test items were not performed because this device uses the granted module.
(FCC ID: 2APB6-BOT-NLE521)
Please refer to the test report of the granted module

2. Test Methodology

The measurement procedures described in the ANSI C63.10-2013 and the guidance provided in KDB558074 D01v05r02 were used in measurement of the EUT.

The EUT was tested per the guidance of KDB558074 D01v05r02. And ANSI C63.10-2013 was used to reference appropriate EUT setup and maximizing procedures of radiated spurious emission and AC line conducted emission testing.

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The EUT was operated in the test mode to fix the TX frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

2.3 General Test Procedures

Conducted Emissions

The power-line conducted emission test procedure is not described on the KDB558074 D01v05r02.

So this test was fulfilled with the requirements in Section 6.2 of ANSI C63.10-2013.

The EUT is placed on the wooden table, which is 0.8 m above ground plane and the conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and Average detector.

Radiated Emissions

Basically the radiated tests were performed with KDB558074 D01v05r02. But some requirements and procedures like test site requirements, EUT setup and maximizing procedure were fulfilled with the requirements in Section 5 and 6 of the ANSI C63.10-2013 as stated on section 12.1 of the KDB558074 D01v05r02.

The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

2.4 Description of Test Modes

The EUT has been tested with the operating condition for maximizing the emission characteristics. A test program is used to control the EUT for staying in continuous transmitting. The Bluetooth low energy mode with below low, middle and high channels were tested and reported.

Test Mode	Description	Frequency [MHz]		
		Lowest Frequency	Middle Frequency	Highest Frequency
TM 1	LE (1 Mbps)	2 402	2 440	2 480

2.5 Instrument Calibration

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

3. Test Result

3.1 Unwanted Emissions (Radiated)

Test Requirements and limit,

§15.247(d), §15.205, §15.209

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a) and (b), then the 15.209(a) limit in the table below has to be followed.

• FCC Part 15.209(a) and (b)

Frequency (MHz)	Limit (uV/m)	Measurement Distance (meter)
0.009 ~ 0.490	2 400 / F (kHz)	300
0.490 ~ 1.705	24 000 / F (kHz)	30
1.705 ~ 30.000	30	30
30 ~ 88	100 **	3
88 ~ 216	150 **	3
216 ~ 960	200 **	3
Above 960	500	3

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 MHz ~ 72 MHz, 76 MHz ~ 88 MHz, 174 MHz ~ 216 MHz or 470 MHz ~ 806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

• FCC Part 15.205 (a) : Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.414 25 ~ 8.414 75	108 ~ 121.94	1 300 ~ 1 427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1 435 ~ 1 626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.173 5 ~ 2.190 5	12.519 75 ~ 12.520 25	149.9 ~ 150.05	1 645.5 ~ 1 646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.576 75 ~ 12.577 25	156.524 75 ~ 156.525 25	1 660 ~ 1 710	8.025 ~ 8.5	22.01 ~ 23.12
4.177 25 ~ 4.177 75	13.36 ~ 13.41	156.7 ~ 156.9	1 718.8 ~ 1 722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.207 25 ~ 4.207 75	16.42 ~ 16.423	162.0125 ~ 167.17	2 200 ~ 2 300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.694 75 ~ 16.695 25	167.72 ~ 173.2	2 310 ~ 2 390	10.6 ~ 12.7	36.43 ~ 36.5
6.267 75 ~ 6.268 25	16.804 25 ~ 16.804 75	240 ~ 285	2 483.5 ~ 2 500	13.25 ~ 13.4	Above 38.6
6.311 75 ~ 6.312 25	25.5 ~ 25.67	322 ~ 335.4	2 690 ~ 2 900		
8.291 ~ 8.294	37.5 ~ 38.25	399.90 ~ 410	3 260 ~ 3 267		
8.362 ~ 8.366	73 ~ 74.6	608 ~ 614	3 332 ~ 3 339		
8.376 25 ~ 8.386 75	74.8 ~ 75.2	960 ~ 1 240	3 345.8 ~ 3 358		
			3 600 ~ 4 400		

• FCC Part 15.205(b) : The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1 000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

3.1.1 Test Setup

Refer to the APPENDIX I.

3.1.2 Test Procedures

1. The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

Note: Measurement Instrument Setting for Radiated Emission Measurements.

- KDB558074 D01v05r02 - Section 8.6
- ANSI C63.10-2013 – Section 11.12

1. Frequency Range Below 1 GHz

RBW = 100 or 120 kHz, VBW = 3 x RBW, Detector = Peak or Quasi Peak

2. Frequency Range > 1 GHz

Peak Measurement > 1 GHz

RBW = 1 MHz, VBW = 3 MHz, Detector = Peak, Sweep time = Auto, Trace mode = Max Hold until the trace stabilizes

Average Measurement > 1 GHz

1. RBW = 1 MHz (unless otherwise specified).

2. VBW \geq 3 x RBW.

3. Detector = RMS (Number of points \geq 2 x Span / RBW)

4. Averaging type = power (i.e., RMS).

5. Sweep time = auto.

6. Perform a trace average of at least 100 traces.

7. A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:

- 1) If power averaging (RMS) mode was used in step 4, then the applicable correction factor is $10 \log(1/D)$, where x is the duty cycle.
- 2) If linear voltage averaging mode was used in step 4, then the applicable correction factor is $20 \log(1/D)$, where x is the duty cycle.
- 3) If a specific emission is demonstrated to be continuous (\geq 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

Test Mode	Duty Cycle (%)	T_{on} (ms)	$T_{on} + T_{off}$ (ms)	$DCCF = 10 \log(1/D)$ (dB)
TM 1	62.72	0.392	0.625	2.03

Note: Refer to appendix II for duty cycle measurement procedure and plots

3.1.3 Test Results

- Test Notes

1. The radiated emissions were investigated 9 kHz to 25 GHz. And no other spurious and harmonic emissions were found below listed frequencies.
2. Information of Distance Correction Factor (DCF)

For finding emissions, measurements may be performed at a distance closer than that specified in the regulations.

In this case, the distance correction factor is applied to the result.

- Calculation of distance correction factor

At frequencies below 30 MHz = $40 \log(\text{tested distance} / \text{specified distance})$

At frequencies at or above 30 MHz = $20 \log(\text{tested distance} / \text{specified distance})$

When distance factor is "N/A", the measurements were performed at the specified distance and distance factor is not applied.

3. Sample Calculation.

Margin = Limit – Result / Result = Reading + T.F + DCCF / T.F = AF + CL – AG

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,

DCCF = Duty Cycle Correction Factor.

Frequency Range : 9 kHz ~ 25 GHz _ TM 1

▪ Lowest Channel

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2 388.96	H	X	PK	50.48	4.78	N/A	N/A	55.26	74.00	18.74
2 389.79	H	X	AV	39.40	4.79	2.03	N/A	46.22	54.00	7.78
4 803.64	V	X	PK	52.01	1.86	N/A	N/A	53.87	74.00	20.13
4 803.97	V	X	AV	41.72	1.86	2.03	N/A	45.61	54.00	8.39
7 205.34	V	X	PK	51.53	7.72	N/A	N/A	59.25	74.00	14.75
7 205.27	V	X	AV	41.96	7.72	2.03	N/A	51.71	54.00	2.29

▪ Middle Channel

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4 880.47	V	X	PK	52.31	2.12	N/A	N/A	54.43	74.00	19.57
4 880.03	V	X	AV	42.36	2.12	2.03	N/A	46.51	54.00	7.49
7 320.08	V	X	PK	51.10	8.20	N/A	N/A	59.30	74.00	14.70
7 319.42	V	X	AV	41.00	8.19	2.03	N/A	51.22	54.00	2.78

▪ Highest Channel

Frequency (MHz)	ANT Pol	The worst case EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2 484.26	H	X	PK	49.79	5.74	N/A	N/A	55.53	74.00	18.47
2 484.08	H	X	AV	38.88	5.74	2.03	N/A	46.65	54.00	7.35
4 959.97	V	X	PK	53.23	2.12	N/A	N/A	55.35	74.00	18.65
4 959.78	V	X	AV	43.04	2.12	2.03	N/A	47.19	54.00	6.81
7 439.61	V	X	PK	49.25	8.16	N/A	N/A	57.41	74.00	16.59
7 439.16	V	X	AV	39.40	8.16	2.03	N/A	49.59	54.00	4.41

3.2 Power line Conducted Emissions

Test Requirements and limit, §15.207 & RSS-Gen [8.8]

For an intentional radiator 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 in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Conducted Limit (dBuV)	
	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

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

3.2.1 Test Setup

See test photographs for the actual connections between EUT and support equipment.

3.2.2 Test Procedures

Conducted emissions from the EUT were measured according to the ANSI C63.10-2013.

1. The test procedure is performed in a 6.5 m \times 3.5 m \times 3.5 m (L \times W \times H) shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) \times 1.5 m (L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

3.2.3 Test Results

AC Line Conducted Emissions (Graph)

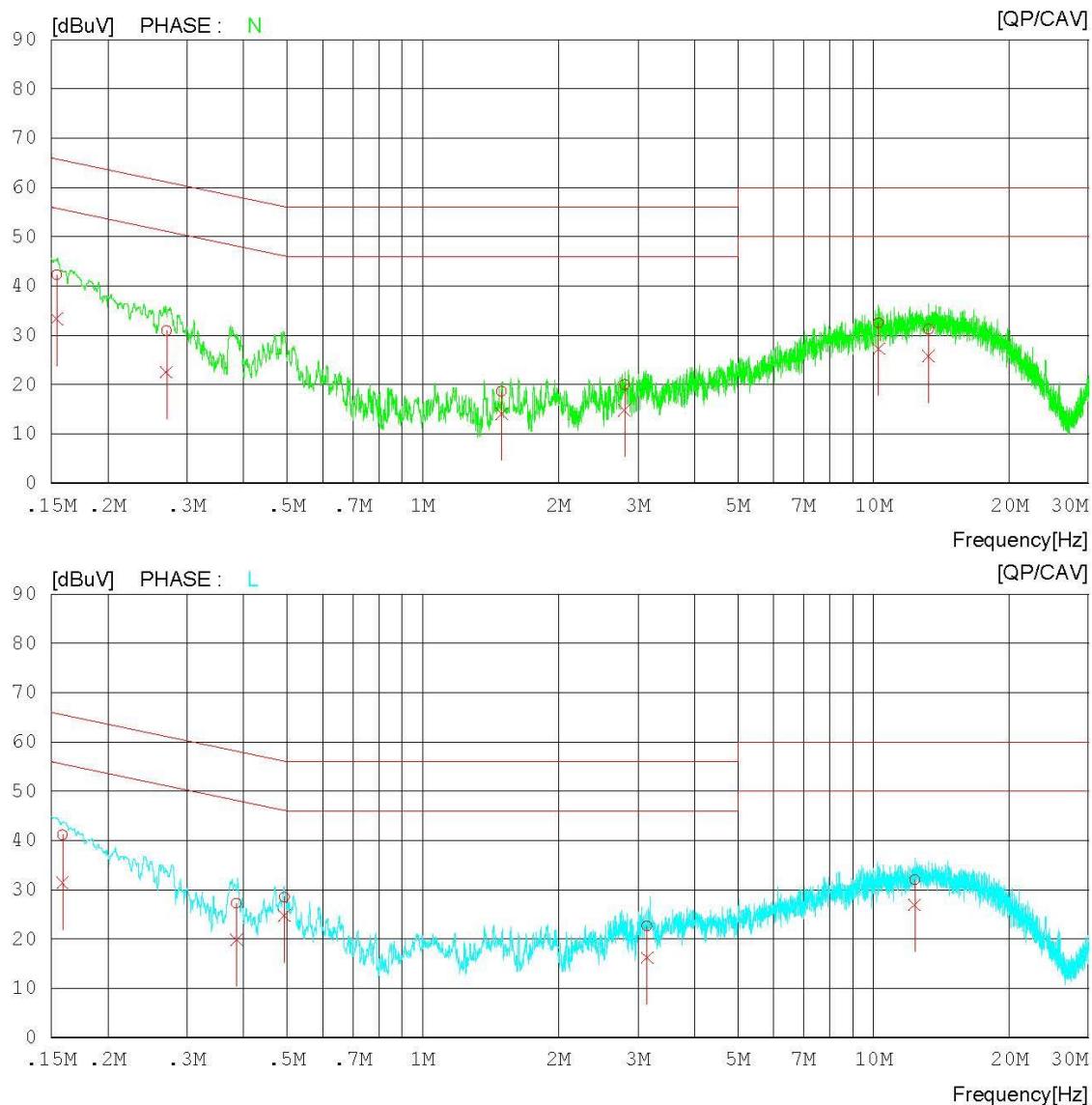
Results of Conducted Emission

DTNC

Date 2021-01-22

Order No.
Model No.
Serial No.
Test ConditionAccuLoader
BLEReference No.
Power Supply
Temp/Humi.
Operator120 V, 60 Hz
23 °C / 40 %
J. W. Kim

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV

AC Line Conducted Emissions (List)**Results of Conducted Emission**

DTNC

Date 2021-01-22

Order No.		Referrence No.
Model No.	AccuLoader	Power Supply
Serial No.		Temp/Humi.
Test Condition	BLE	Operator

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING		C. FACTOR [dB]	RESULT		LIMIT		MARGIN [dBuV]	PHASE
		QP [dBuV]	CAV [dBuV]		QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]		
1	0.15420	32.30	23.46	9.94	42.24	33.40	65.77	55.77	23.53	22.37
2	0.27009	20.96	12.56	9.95	30.91	22.51	61.12	51.12	30.21	28.61
3	1.49624	8.69	4.18	9.99	18.68	14.17	56.00	46.00	37.32	31.83
4	2.79950	9.97	4.79	10.07	20.04	14.86	56.00	46.00	35.96	31.14
5	10.25691	22.16	16.96	10.32	32.48	27.28	60.00	50.00	27.52	22.72
6	13.24840	20.90	15.43	10.41	31.31	25.84	60.00	50.00	28.69	24.16
7	0.15886	31.14	21.39	9.95	41.09	31.34	65.52	55.52	24.43	24.18
8	0.38651	17.26	9.91	9.95	27.21	19.86	58.14	48.14	30.93	28.28
9	0.49327	18.48	14.83	9.98	28.46	24.81	56.11	46.11	27.65	21.30
10	3.14553	12.49	6.12	10.07	22.56	16.19	56.00	46.00	33.44	29.81
11	12.33500	21.63	16.52	10.37	32.00	26.89	60.00	50.00	28.00	23.11

4. ANTENNA REQUIREMENTS

According to FCC 47 CFR §15.203

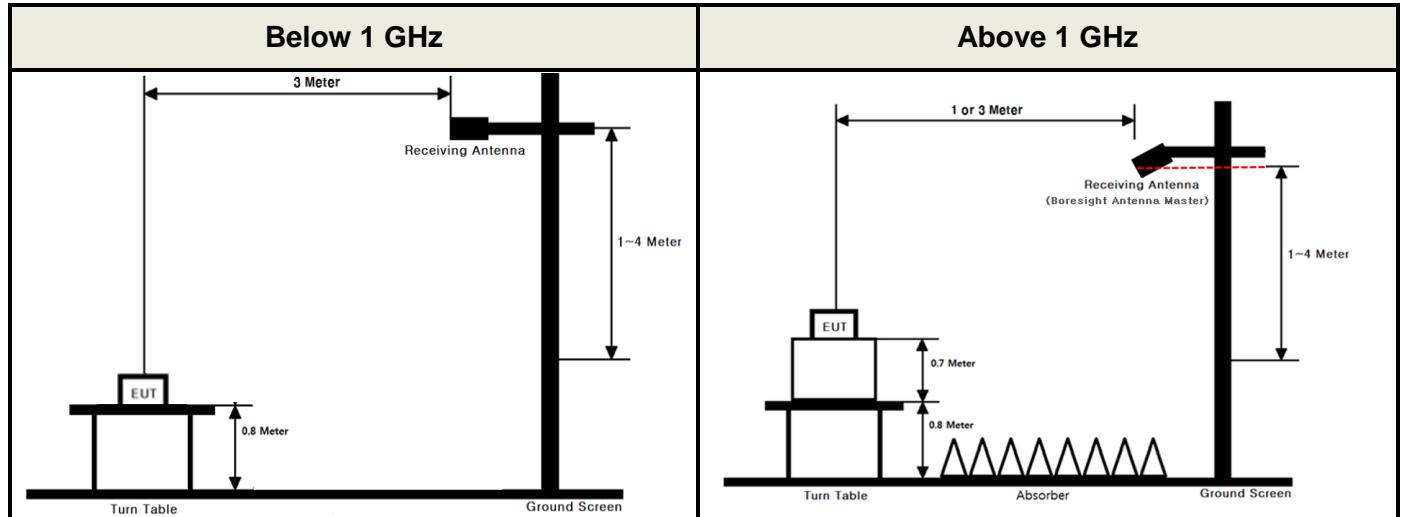
"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

The antenna is permanently attached. The antenna type is chip antenna. (Refer to Internal Photo file.)
Therefore this E.U.T Complies with the requirement of §15.203

APPENDIX I

Test set up diagrams

- **Radiated Measurement**



APPENDIX II

Duty cycle plots

▪ Test Procedure

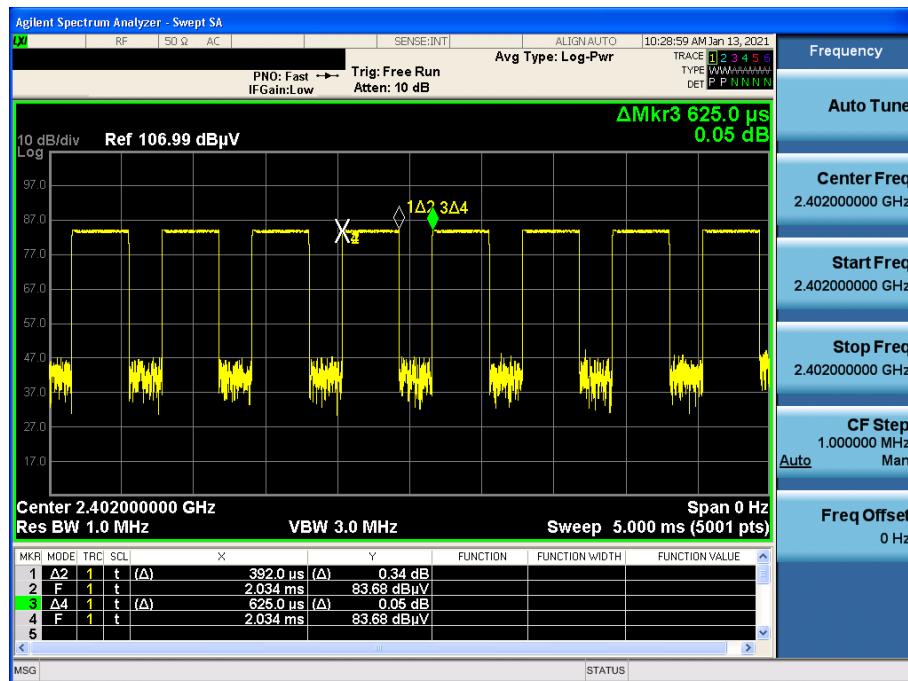
Duty Cycle was measured using **Section 6.0 b) of KDB558074 D01v05:**

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW \geq OBW if possible; otherwise, set RBW to the largest available value. Set VBW \geq RBW. Set detector = peak or average.

The zero-span measurement method shall not be used unless both RBW and VBW are $> 50 / T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

Duty Cycle

TM 1 Test Channel : Middle

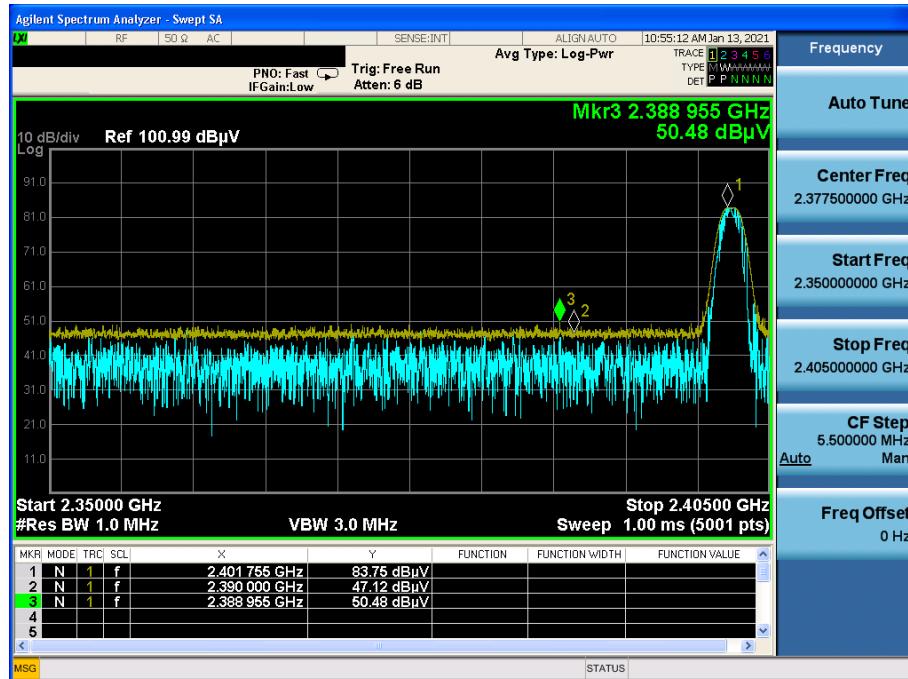


APPENDIX III

Unwanted Emissions (Radiated) Test Plot

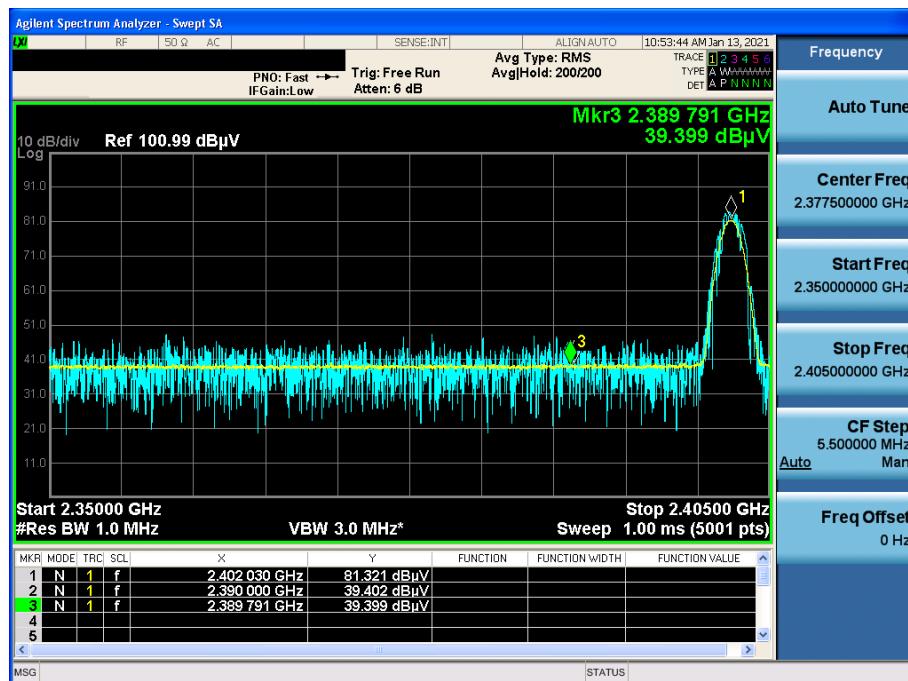
TM1 & Lowest & X & Hor

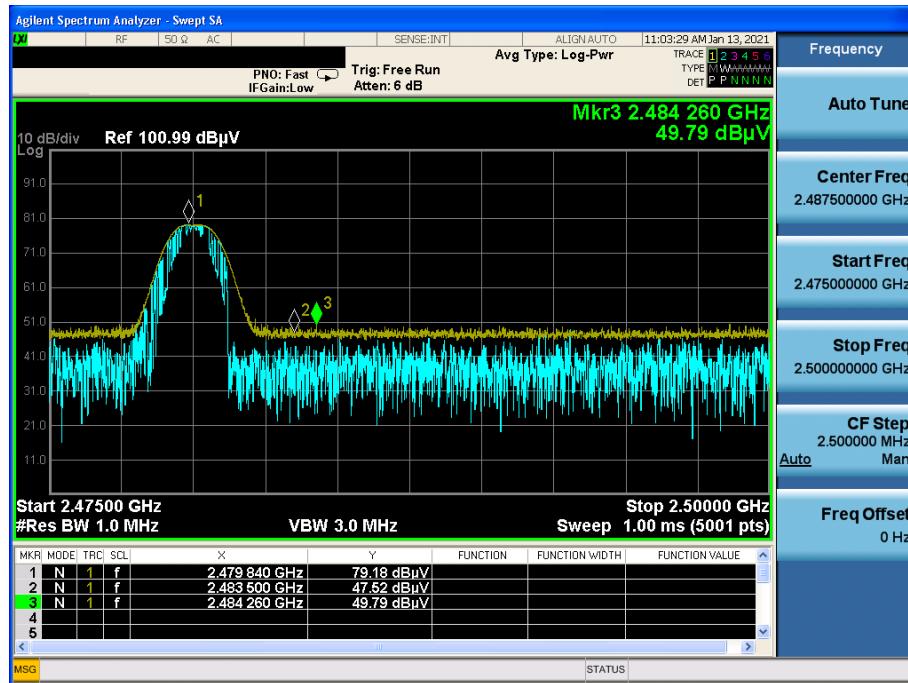
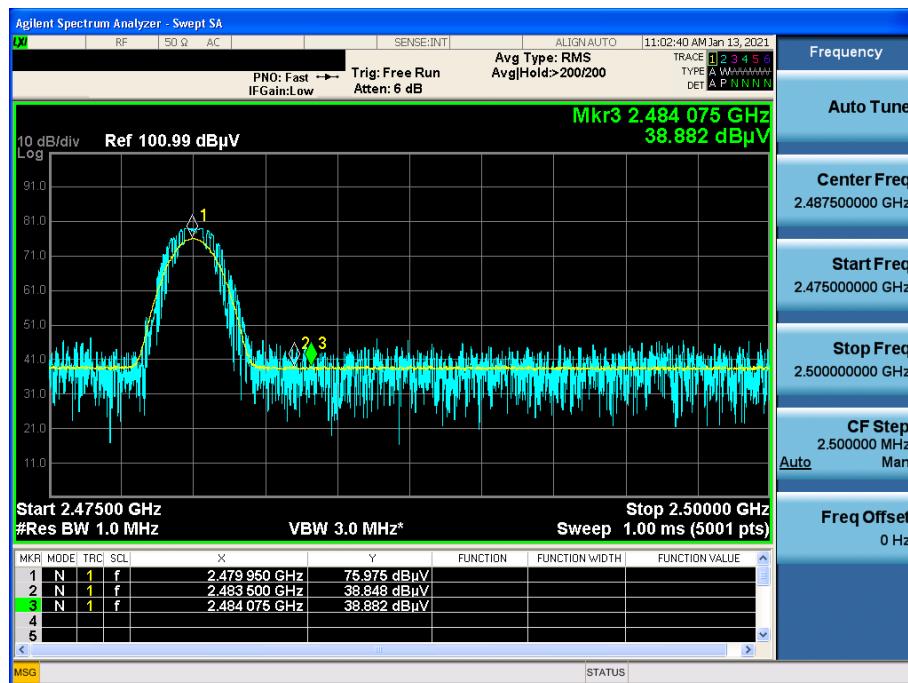
Detector Mode : PK



TM1 & Lowest & X & Hor

Detector Mode : AV



TM1 & Highest & X & Hor
Detector Mode : PK

TM1 & Highest & X & Hor
Detector Mode : AV


TM1 & Lowest & X & Ver

Detector Mode : AV

