



Accredited Testing Laboratory under the terms of ISO/IEC 17025

CE CONFORMANCE REPORT

EMC DIRECTIVE 2014/30/EU

for

PRODUCT: PV Inverter

“MODEL NAME: OP3000 TL-H OD”

AUTHORIZED

OCI Power Co., Ltd.

1st-2nd Floor, 5th Factory, 15, Jayumuyeok 2-gil, Gunsan-si, Jeollabuk-do, Republic of Korea

August 26, 2021

SUMMARY

The equipment complies with the standards;

- EN 55011: 2016 + A1:2017
- EN 61000-6-2 : 2019 (Group 1, Class A)

(signature)

Seung-Hyun, Nam / Director

This is only valid in connection with Test Report: OT-218-RED-082

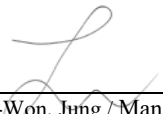
ELECTROMAGNETIC COMPATIBILITY TEST REPORT

Test Report No. : OT-218-RED-082
Reception No. : 2107003422
Applicant : OCI Power Co., Ltd.
Address : 1st-2nd Floor, 5th Factory, 15, Jayumuyeok 2-gil, Gunsan-si, Jeollabuk-do, Republic of Korea
Manufacturer : OCI Power Co., Ltd.
Address : 1st-2nd Floor, 5th Factory, 15, Jayumuyeok 2-gil, Gunsan-si, Jeollabuk-do, Republic of Korea
Type of Equipment : PV Inverter
Model Name : OP3000 TL-H OD
Multiple Model Name : N/A
Serial number : N/A
Total page of Report : 54 pages (including this page)
Date of Incoming : August 10, 2021
Date of Issuing : August 26, 2021

SUMMARY

The equipment complies with the standard; EN 55011: 2016 + A1:2017, EN 61000-6-2: 2019
 This test report contains only the results of a single test of the sample supplied for the examination.
 It is not a general valid assessment of the features of the respective products of the mass-production

Reviewed by:


 Dong-Won, Jung / Manager
 ONETECH Corp.

Approved by:


 Seung-Hyun, Nam / Director
 ONETECH Corp.

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Revision History

Issue Report No.	Issued Date	Revisions	Effect Section
OT-218-RED-082	August 26, 2021	Initial Release	All

* Please contact us (e-mail: info@onetech.co.kr) for verification of this test report.

1. APPLICANT AND MANUFACTURER INFORMATION

- Applicant : OCI Power Co., Ltd.
- Address : 1st-2nd Floor, 5th Factory, 15, Jayumuyeok 2-gil, Gunsan-si, Jeollabuk-do, Republic of Korea
- Manufacturer : OCI Power Co., Ltd.
- Address : 1st-2nd Floor, 5th Factory, 15, Jayumuyeok 2-gil, Gunsan-si, Jeollabuk-do, Republic of Korea
- Factory : OCI Power Co., Ltd.
- Address : 1st-2nd Floor, 5th Factory, 15, Jayumuyeok 2-gil, Gunsan-si, Jeollabuk-do, Republic of Korea

2. TEST SUMMARY

2.1 Test standards and results

STANDARDS		RESULTS
EN 55011: 2016 + A1:2017 (Group 1, Class A)	Mains terminal disturbance voltage (> 75 kVA)	Met / PASS
	Radiated electromagnetic field (30 MHz ~ 1 GHz)	Met / PASS (See Note 1)
	Conducted Common Mode Disturbance at Telecommunication Ports	Met / PASS
EN 61000-3-2: 2014	Harmonic Current Emissions	N/A (See Note 2)
EN 61000-3-3: 2013	Voltage Changes, Voltage Fluctuations and Flicker	N/A (See Note 2)
EN 61000-6-2: 2019	Electrostatic Discharge Immunity	Met Criterion A / PASS
	Radiated RF E-Field	Met Criterion A / PASS (See Note 3)
	Electrical Fast Transient/Burst Immunity	Met Criterion A / PASS
	Surge Immunity	Met Criterion A / PASS
	Conducted Disturbance induced by RF fields Immunity	Met Criterion A / PASS
	Power Frequency Magnetic Field Immunity	N/A (See Note 4)
	Voltage Dips and Short Interruptions	N/A (See Note 2)
	Walkie Talkie	Met Criterion A / PASS (See Note 5)

Note 1: The test is performed until 1 GHz, because the internal frequency of the EUT is under 108 MHz.

2: This test is not performed because the EUT's input current is over 16 A.

3: EN 61000-4-3 test couldn't test at the installation place. So for 80 MHz~1 GHz, it tested with current injection probe.

4: The equipment under test does not contain devices susceptible to magnetic fields, so the test was not performed.

5: It tested with wireless frequency generator (400 MHz ~ 470 MHz, 1.9 GHz, 2.4 GHz, 5.0 GHz) according to EN 61800-3 section A3.2.2.

*: The environments encompassed by this standard are industrial, both indoor and outdoor.

Apparatus covered by this standard is intended to be connected to a power network supplied from a high or medium

voltage transformer dedicated to the supply of an installation feeding manufacturing or similar plant, and intended to operate in or in proximity to industrial locations, as described below.

Apparatus intended to be used in industrial locations are characterized by the existence of one or more of the following:

- a power network exists powered by a high or medium voltage power transformer dedicated for the supply of an installation feeding manufacturing or similar plant;
- industrial, scientific and medical (ISM) apparatus;
- heavy inductive or capacitive loads are frequently switched;
- currents and associated magnetic fields are high.










2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Purpose of the test

To determine whether the equipment under test fulfills the EMC requirements of the standards stated in section 2.1.

2.4 Test Facility

Laboratory Qualification	Registration No.	Mark
IECEE CBTL	TL189	
KOLAS	KT085	
RRA	KR0013	
FCC	KR0013	
ISED (Innovation, Science and Economic Development Canada)	KR0013	
TUV SUD	ROK1015C	
TUV Rheinland	UA 50269464 UA 50269476 UA 50269480	
VCCI	C-14617 R-20122 T-11842 G-10666	
HKMC	ES96200-00	
KR	PCT25650-TL001	

3. EUT (Equipment Under Test)

3.1 Identification of the EUT

- . Equipment	: PV Inverter
- . Model Name	: OP3000 TL-H OD
- . Brand Name	: N/A
- . Serial number	: N/A
- . Manufacturer	: OCI Power Co., Ltd.

3.2 Additional information about the EUT

The OCI Power Co., Ltd., Model OP3000 TL-H OD (referred to as the EUT in this report) is a PV Inverter. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Metal	
P. C. Board name	-	
LIST OF EACH OSC. or CRY. FREQ.(FREQ. \geq 1 MHz)	20 MHz	
NUMBER OF PCB LAYERS	OCU-4 layer, MASI1-4 layer, MASI2-4 layer, MPSI-4 layer, GFD-4 layer, GDR-2 layer, NHMI Base-4 layer, NHMI LIF2-2 layer	
ELECTRICAL RATING	Input	890 ~ 1 300 Vdc. 3 472 A, 3 090 kW
	Output	600 Vac, 2 887 A, 3 000 kW, 50/60 Hz
EXTERNAL CONNECTOR	DC INPUT 1, DC INPUT 2, DC INPUT 3, DC INPUT 4, AC OUTPUT, LAN, Ground	

3.3 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested

Model	Manufacturer	Description	Connected to
OP3000 TL-H OD	OCI Power Co., Ltd.	PV Inverter (EUT)	-
N/A	N/A	DC Power Source	EUT
N/A	N/A	Transformer	EUT
N/A	N/A	Notebook PC	EUT

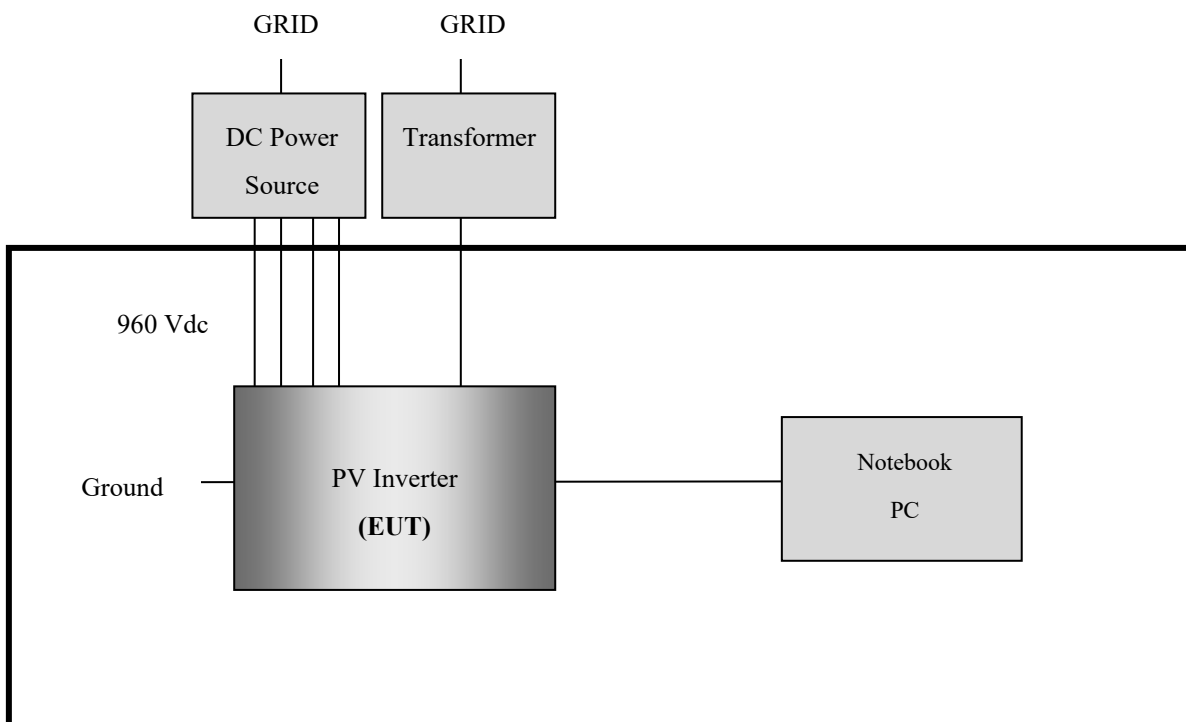
3.4 Cable Description

Ports Name	Shielded	Ferrite Bead	Metal Shell	Length (m)	Connected to
AC Output	N	N	N	5.0	Transformer
DC Input 1	N	N	N	5.0	DC Power Source
DC Input 2	N	N	N	5.0	DC Power Source
DC Input 3	N	N	N	5.0	DC Power Source
DC Input 4	N	N	N	5.0	DC Power Source
LAN	N	N	N	10.0	Notebook PC
Ground	N	N	N	7.0	Ground

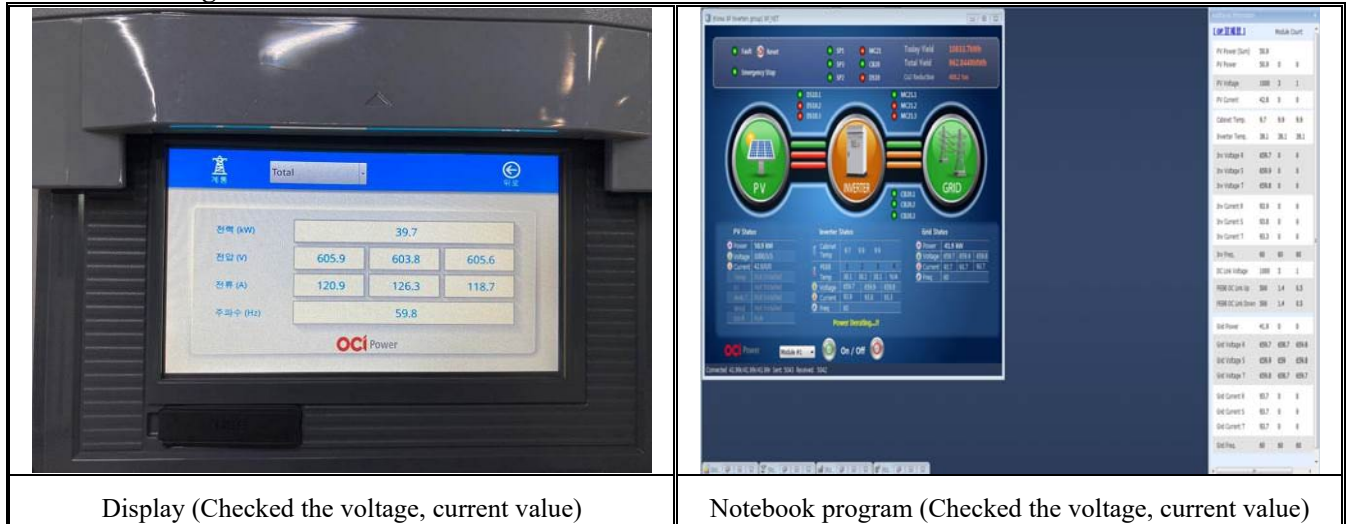
3.5 Mode of operation during the test

- Input power condition during the measurements was DC 960 V and Output power condition during the measurement was AC 600 V, 60 Hz.
- The recorded with worst result value during the test.

3.6 System Block Diagram



3.7 Monitoring of the EUT



3.8 Criterion description

Criterion	Descriptions
A	The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.
B	The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.
C	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

3.9 Alternative type(s)/model(s)

-. None

4. EUT MODIFICATIONS

-. None

5. EMISSION TESTS

5.1 MAINS TERMINAL CONTINUOUS DISTURBANCE VOLTAGE

5.1.1 Operating environment

Temperature : 26.0 °C
Relative humidity : 47.0 % R.H.

5.1.2 Test set-up

The power line conducted emission measurements were performed in a manufacturer's location. The mains terminal continuous disturbance was measured at main terminal only using a Voltage Probe. The probe is connected sequentially between each line and the ground plane.

The test set-up photos are included in appendix I.

5.1.3 Measurement uncertainty

Mains terminal continuous disturbance voltage, quasi-peak detection : 2.2 dB

Mains terminal continuous disturbance voltage, average detection : 2.2 dB

Measurement uncertainty is calculated in accordance with CISPR 16-4-2. The measurement uncertainty is given with a confidence of 95 % with the coverage factor, $k = 2$.

If the measured result is a little bit less than the upper limit line where a half of uncertainty range,

It can be declared that will satisfy in adaption of the confidence level smaller than 95%.

5.1.4 Test equipment used

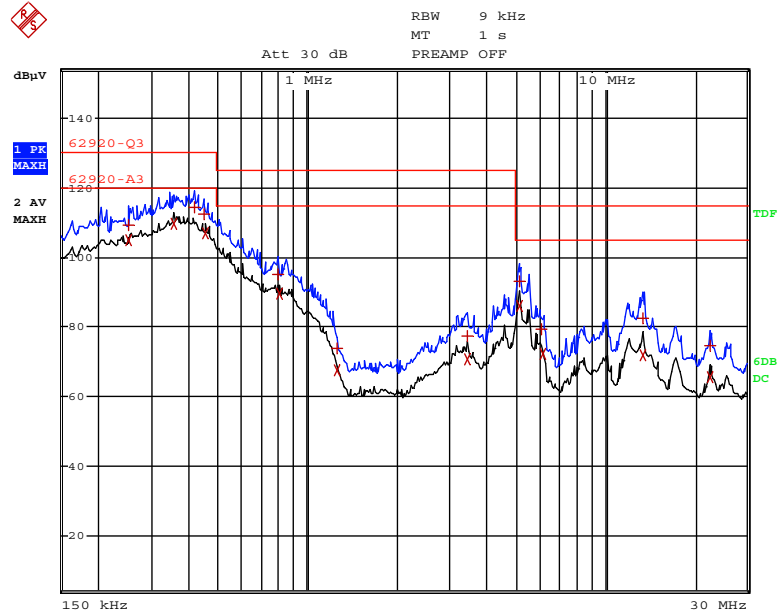
Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ - ESCI	Rohde & Schwarz	EMI Test Receiver	101419	Oct. 19, 2020(1Y)
■ - TK9422	Schwarzbeck	High Voltage Probe	152	Jun. 30, 2021(1Y)

All test equipments used are calibrated on a regular basis.

5.1.5 Test data

(1) AC OUTPUT (AC 600 V, 60 Hz)

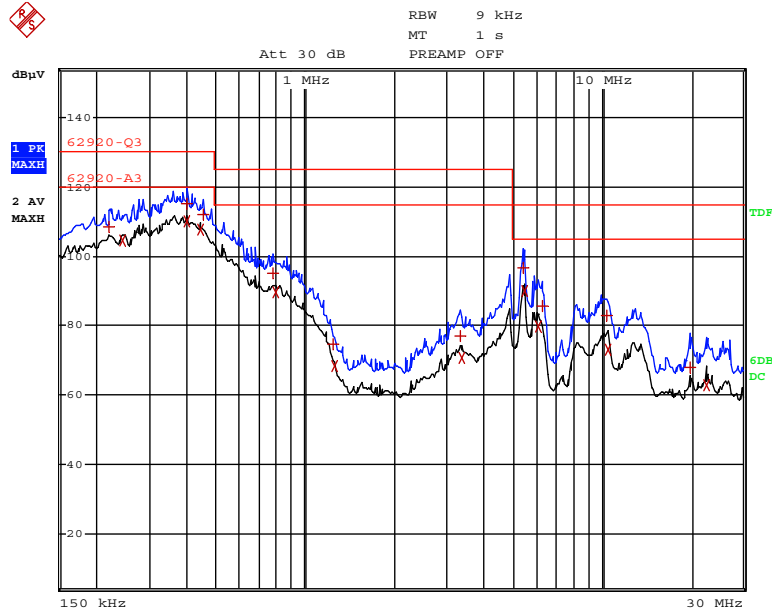
- Test Date : August 10, 2021
- Resolution bandwidth : 9 kHz
- Frequency range : 0.15 MHz ~ 30 MHz
- Tested Line : R (L1) LINE



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	62920-Q3		
Trace2:	62920-A3		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Quasi Peak	250 kHz	109.49	-20.50
2 Average	254 kHz	105.11	-14.89
2 Average	354 kHz	109.84	-10.16
1 Quasi Peak	414 kHz	114.36	-15.64
1 Quasi Peak	446 kHz	112.52	-17.48
2 Average	450 kHz	107.07	-12.93
1 Quasi Peak	798 kHz	95.25	-29.74
2 Average	802 kHz	89.74	-25.25
1 Quasi Peak	1.254 MHz	73.69	-51.30
2 Average	1.262 MHz	67.66	-47.33
1 Quasi Peak	3.438 MHz	77.55	-47.44
2 Average	3.466 MHz	70.84	-44.16
1 Quasi Peak	5.154 MHz	93.08	-21.91
2 Average	5.154 MHz	85.97	-19.02
1 Quasi Peak	6.142 MHz	79.40	-35.60
2 Average	6.142 MHz	72.44	-32.55
1 Quasi Peak	13.35 MHz	82.74	-32.26
2 Average	13.458 MHz	72.05	-32.94
1 Quasi Peak	22.634 MHz	74.76	-40.23
2 Average	22.634 MHz	65.74	-39.25

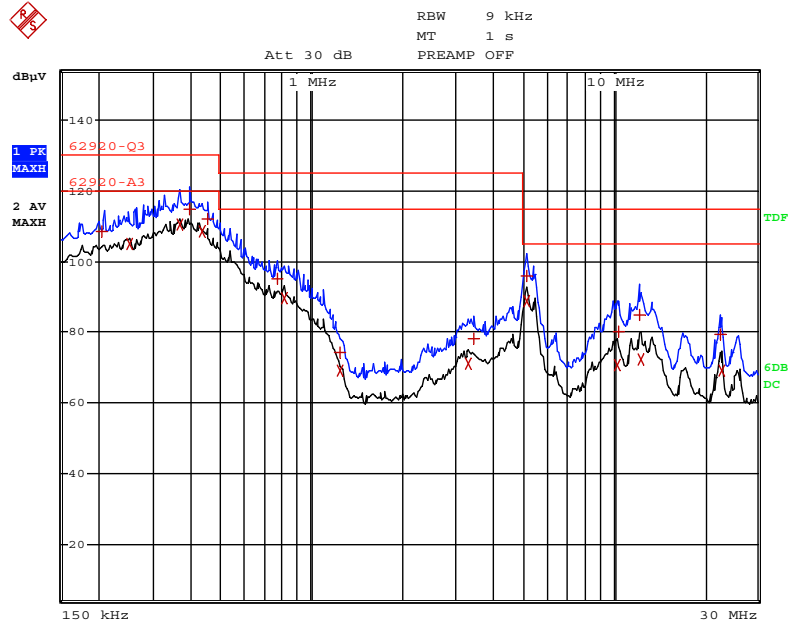
-. Tested Line

: S (L2) LINE



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	62920-Q3		
Trace2:	62920-A3		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Quasi Peak	222 kHz	108.42	-21.58
2 Average	246 kHz	104.70	-15.29
1 Quasi Peak	398 kHz	115.02	-14.97
2 Average	398 kHz	109.97	-10.03
2 Average	442 kHz	107.92	-12.07
1 Quasi Peak	450 kHz	112.03	-17.97
1 Quasi Peak	778 kHz	94.95	-30.04
2 Average	794 kHz	89.69	-25.30
1 Quasi Peak	1.25 MHz	74.49	-50.50
2 Average	1.258 MHz	68.17	-46.82
1 Quasi Peak	3.334 MHz	76.94	-48.05
2 Average	3.378 MHz	70.68	-44.31
1 Quasi Peak	5.458 MHz	96.67	-18.32
2 Average	5.478 MHz	89.97	-15.02
2 Average	6.138 MHz	79.76	-25.23
1 Quasi Peak	6.31 MHz	85.57	-29.42
1 Quasi Peak	10.402 MHz	82.80	-32.19
2 Average	10.466 MHz	73.02	-31.97
1 Quasi Peak	19.802 MHz	67.93	-47.06
2 Average	22.534 MHz	62.84	-42.15

-. Tested Line : T (L3) LINE



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	62920-Q3		
Trace2:	62920-A3		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Quasi Peak	206 kHz	108.53	-21.47
2 Average	250 kHz	104.82	-15.18
2 Average	366 kHz	110.36	-9.63
1 Quasi Peak	394 kHz	114.91	-15.09
2 Average	434 kHz	108.50	-11.50
1 Quasi Peak	450 kHz	112.06	-17.94
1 Quasi Peak	774 kHz	95.07	-29.92
2 Average	810 kHz	89.75	-25.25
1 Quasi Peak	1.25 MHz	74.39	-50.61
2 Average	1.25 MHz	69.19	-45.80
2 Average	3.318 MHz	71.16	-43.83
1 Quasi Peak	3.466 MHz	78.19	-46.80
1 Quasi Peak	5.154 MHz	96.12	-18.88
2 Average	5.154 MHz	88.86	-16.13
2 Average	10.242 MHz	70.71	-34.28
1 Quasi Peak	10.378 MHz	80.06	-34.93
1 Quasi Peak	12.234 MHz	84.89	-30.10
2 Average	12.31 MHz	72.16	-32.83
1 Quasi Peak	22.642 MHz	79.53	-35.46
2 Average	22.75 MHz	69.17	-35.82

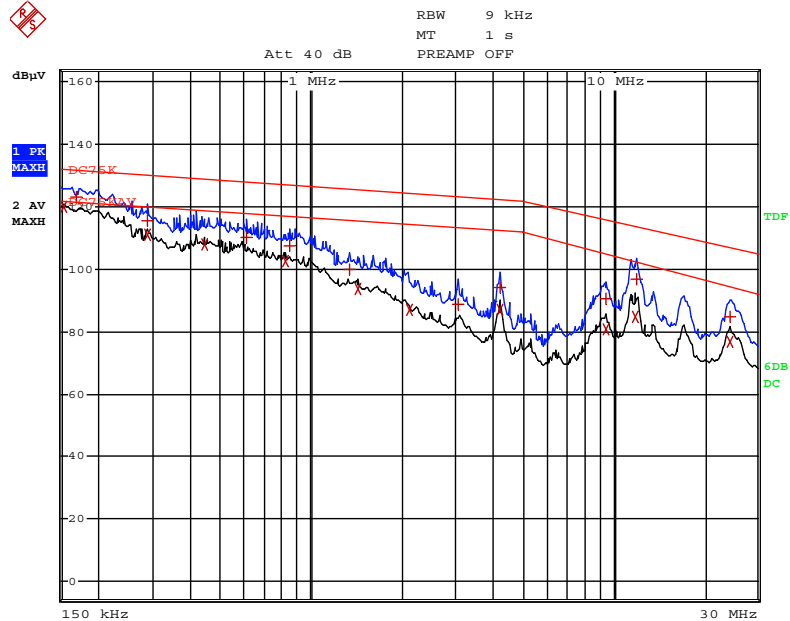
Remark: DELTA (dB) = Level - limit

The emission level in above table is included the reading value, insertion loss and cable loss

Tested by: Dong-Kyu, Kim / Manager

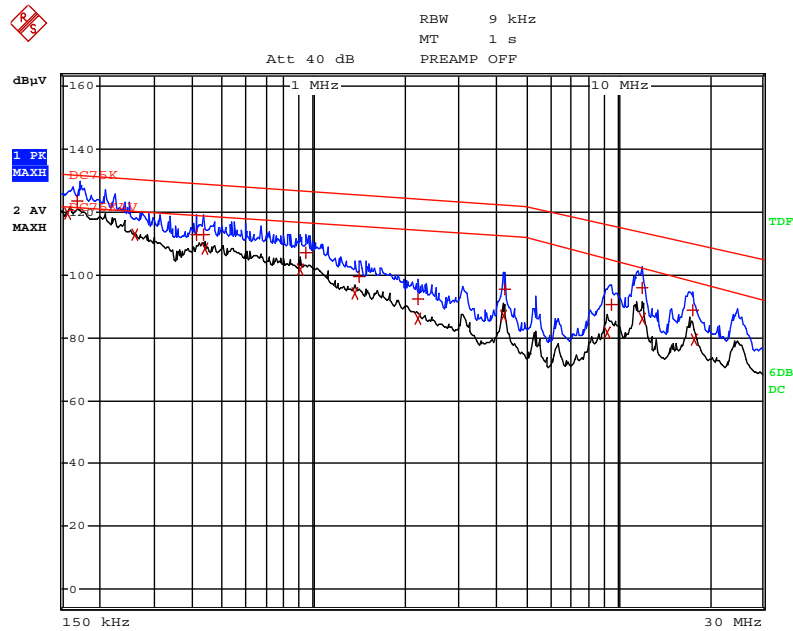
(2) DC Input 1

- Test Date : August 10, 2021
- Resolution bandwidth : 9 kHz
- Frequency range : 0.15 MHz ~ 30 MHz
- Tested Line : POSITIVE LINE



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	DC75K		
Trace2:	DC75KAV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
2 Average	154 kHz	120.13	-1.79
1 Quasi Peak	170 kHz	123.31	-8.33
1 Quasi Peak	286 kHz	115.61	-14.55
2 Average	286 kHz	111.09	-9.06
2 Average	442 kHz	108.21	-10.70
1 Quasi Peak	610 kHz	110.40	-17.59
2 Average	818 kHz	102.51	-14.65
1 Quasi Peak	850 kHz	107.34	-19.70
1 Quasi Peak	1.338 MHz	99.75	-26.00
2 Average	1.422 MHz	93.51	-22.07
2 Average	2.122 MHz	87.10	-27.34
1 Quasi Peak	3.058 MHz	88.88	-34.51
1 Quasi Peak	4.214 MHz	94.30	-28.17
2 Average	4.214 MHz	86.89	-25.59
2 Average	9.406 MHz	80.81	-24.13
1 Quasi Peak	9.45 MHz	90.50	-25.45
2 Average	11.826 MHz	84.92	-17.46
1 Quasi Peak	11.894 MHz	96.77	-17.00
1 Quasi Peak	24.318 MHz	84.97	-22.01
2 Average	24.346 MHz	76.68	-17.64

-. Tested Line : NEGATIVE LINE



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	DC75K		
Trace2:	DC75KAV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
2 Average	158 kHz	119.75	-2.10
1 Quasi Peak	170 kHz	123.83	-7.80
2 Average	258 kHz	112.92	-7.53
1 Quasi Peak	410 kHz	112.94	-16.19
1 Quasi Peak	434 kHz	113.02	-15.94
2 Average	438 kHz	108.31	-10.63
2 Average	906 kHz	101.89	-14.97
1 Quasi Peak	946 kHz	106.90	-19.85
2 Average	1.37 MHz	94.19	-21.49
1 Quasi Peak	1.414 MHz	99.42	-26.18
1 Quasi Peak	2.214 MHz	92.49	-31.83
2 Average	2.214 MHz	86.15	-28.16
2 Average	4.198 MHz	87.24	-25.25
1 Quasi Peak	4.25 MHz	95.45	-27.00
2 Average	9.266 MHz	81.50	-23.60
1 Quasi Peak	9.57 MHz	90.71	-25.12
1 Quasi Peak	12.058 MHz	95.90	-17.74
2 Average	12.058 MHz	85.92	-16.25
1 Quasi Peak	17.674 MHz	88.62	-21.39
2 Average	17.802 MHz	79.64	-18.18

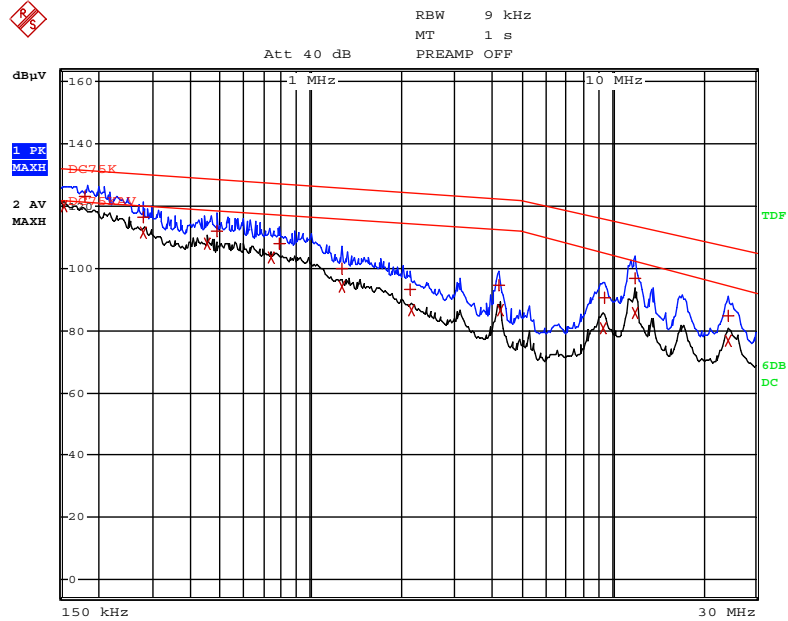
Remark: DELTA (dB) = Level - limit

The emission level in above table is included the reading value, insertion loss and cable loss

Tested by: Dong-Kyu, Kim / Manager

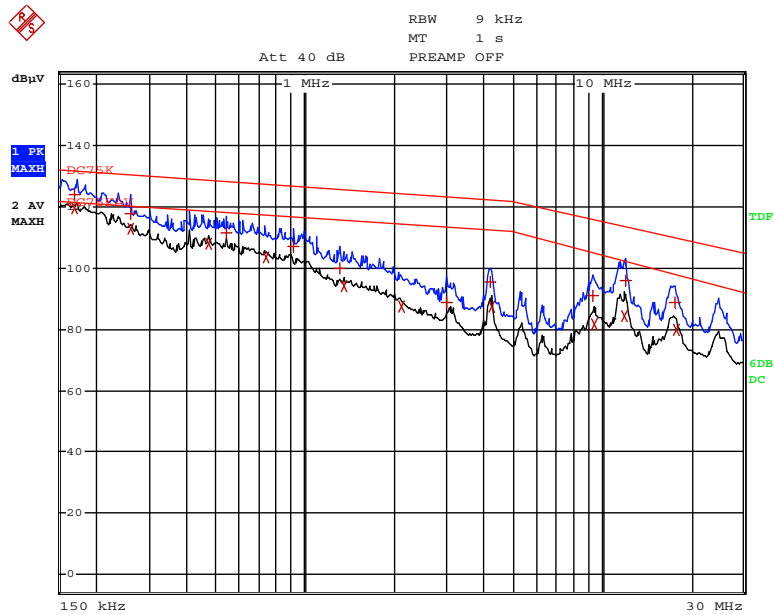
(3) DC Input 2

- Test Date : August 10, 2021
- Resolution bandwidth : 9 kHz
- Frequency range : 0.15 MHz ~ 30 MHz
- Tested Line : POSITIVE LINE



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	DC75K		
Trace2:	DC75KAV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
2 Average	154 kHz	120.16	-1.76
1 Quasi Peak	182 kHz	122.97	-8.47
1 Quasi Peak	278 kHz	116.26	-13.98
2 Average	278 kHz	111.52	-8.72
2 Average	454 kHz	108.16	-10.68
1 Quasi Peak	490 kHz	112.20	-16.42
2 Average	742 kHz	103.38	-14.06
1 Quasi Peak	786 kHz	107.99	-19.28
1 Quasi Peak	1.274 MHz	99.77	-26.12
2 Average	1.274 MHz	94.12	-21.77
1 Quasi Peak	2.13 MHz	93.18	-31.24
2 Average	2.162 MHz	86.54	-27.85
1 Quasi Peak	4.23 MHz	94.60	-27.87
2 Average	4.25 MHz	86.64	-25.81
2 Average	9.35 MHz	80.98	-24.02
1 Quasi Peak	9.45 MHz	90.47	-25.49
2 Average	11.898 MHz	85.52	-16.80
1 Quasi Peak	11.982 MHz	97.04	-16.66
1 Quasi Peak	24.29 MHz	85.01	-21.98
2 Average	24.302 MHz	76.66	-17.68

-. Tested Line : NEGATIVE LINE



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	DC75K			
Trace2:	DC75KAV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
1 Quasi Peak	170 kHz	124.05	-7.59	
2 Average	170 kHz	119.40	-2.24	
1 Quasi Peak	258 kHz	117.89	-12.56	
2 Average	258 kHz	113.02	-7.43	
2 Average	474 kHz	107.87	-10.85	
1 Quasi Peak	542 kHz	111.39	-16.94	
2 Average	738 kHz	103.51	-13.94	
1 Quasi Peak	910 kHz	107.10	-19.75	
1 Quasi Peak	1.31 MHz	99.98	-25.83	
2 Average	1.354 MHz	94.28	-21.44	
2 Average	2.122 MHz	87.52	-26.92	
1 Quasi Peak	3.01 MHz	88.93	-34.51	
1 Quasi Peak	4.222 MHz	95.61	-26.86	
2 Average	4.262 MHz	87.28	-25.17	
1 Quasi Peak	9.33 MHz	91.21	-24.86	
2 Average	9.446 MHz	81.86	-23.03	
2 Average	11.866 MHz	84.56	-17.79	
1 Quasi Peak	12.03 MHz	95.83	-17.83	
1 Quasi Peak	17.698 MHz	88.65	-21.35	
2 Average	17.79 MHz	79.72	-18.11	

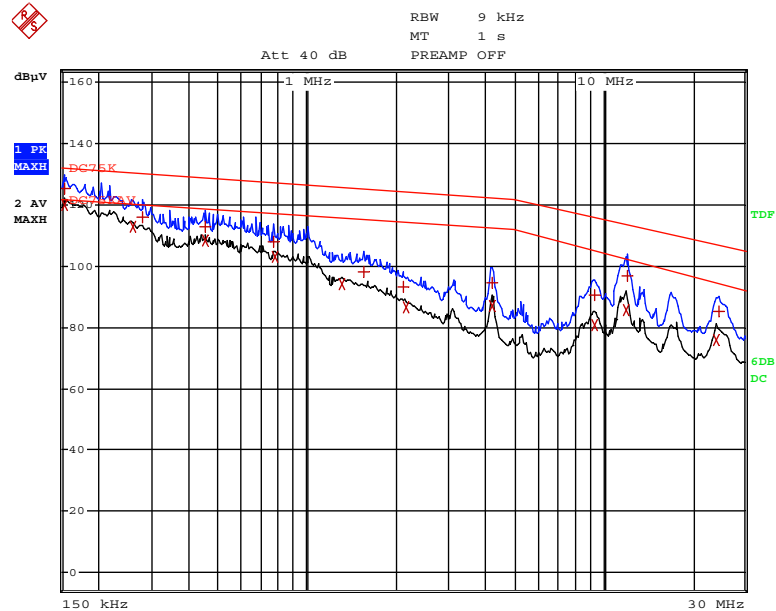
Remark: DELTA (dB) = Level - limit

The emission level in above table is included the reading value, insertion loss and cable loss

Tested by: Dong-Kyu, Kim / Manager

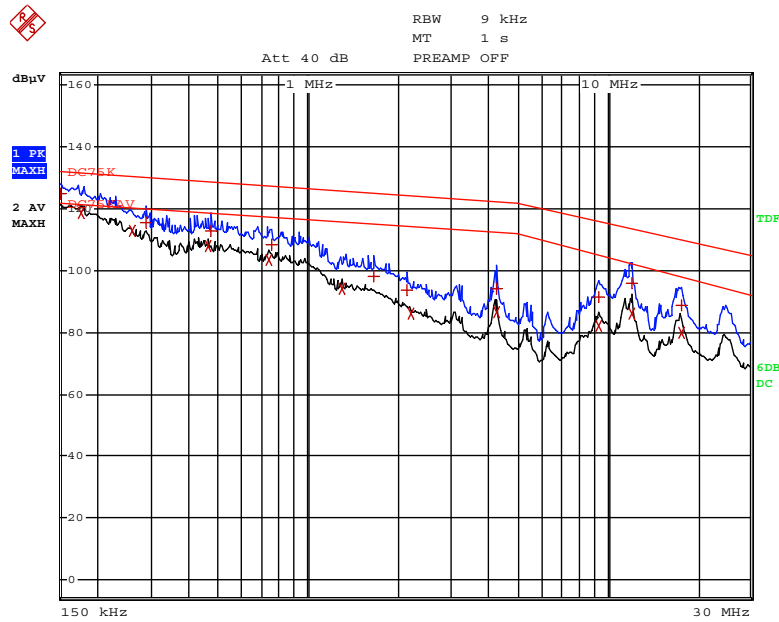
(4) DC Input 3

- . Test Date : August 10, 2021
- . Resolution bandwidth : 9 kHz
- . Frequency range : 0.15 MHz ~ 30 MHz
- . Tested Line : POSITIVE LINE



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	DC75K		
Trace2:	DC75KAV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Quasi Peak	154 kHz	125.23	-6.69
2 Average	154 kHz	120.24	-1.68
2 Average	258 kHz	113.02	-7.43
1 Quasi Peak	278 kHz	116.21	-14.03
1 Quasi Peak	450 kHz	112.94	-15.92
2 Average	450 kHz	108.23	-10.63
1 Quasi Peak	774 kHz	108.06	-19.25
2 Average	782 kHz	102.90	-14.38
2 Average	1.306 MHz	94.20	-21.62
1 Quasi Peak	1.558 MHz	98.11	-27.20
1 Quasi Peak	2.126 MHz	93.41	-31.02
2 Average	2.154 MHz	86.71	-27.69
2 Average	4.23 MHz	87.22	-25.25
1 Quasi Peak	4.238 MHz	94.58	-27.89
2 Average	9.33 MHz	80.89	-24.14
1 Quasi Peak	9.374 MHz	90.72	-25.31
2 Average	11.918 MHz	85.65	-16.64
1 Quasi Peak	12.01 MHz	97.00	-16.68
2 Average	24.046 MHz	76.06	-18.40
1 Quasi Peak	24.446 MHz	85.12	-21.81

-. Tested Line : NEGATIVE LINE



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	DC75K			
Trace2:	DC75KAV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA	LIMIT dB
1 Quasi Peak	150 kHz	125.04	-6.95	
2 Average	178 kHz	118.79	-2.72	
2 Average	258 kHz	113.02	-7.42	
1 Quasi Peak	286 kHz	115.49	-14.67	
2 Average	462 kHz	108.07	-10.72	
1 Quasi Peak	474 kHz	112.75	-15.96	
2 Average	738 kHz	103.51	-13.94	
1 Quasi Peak	758 kHz	108.53	-18.85	
2 Average	1.294 MHz	94.34	-21.51	
1 Quasi Peak	1.65 MHz	98.16	-26.99	
1 Quasi Peak	2.134 MHz	93.74	-30.68	
2 Average	2.218 MHz	86.16	-28.15	
1 Quasi Peak	4.27 MHz	94.23	-28.21	
2 Average	4.27 MHz	86.75	-25.69	
2 Average	9.378 MHz	81.96	-23.01	
1 Quasi Peak	9.382 MHz	91.53	-24.49	
1 Quasi Peak	12.054 MHz	95.88	-17.76	
2 Average	12.054 MHz	85.93	-16.24	
1 Quasi Peak	17.67 MHz	88.64	-21.38	
2 Average	17.75 MHz	79.98	-17.87	

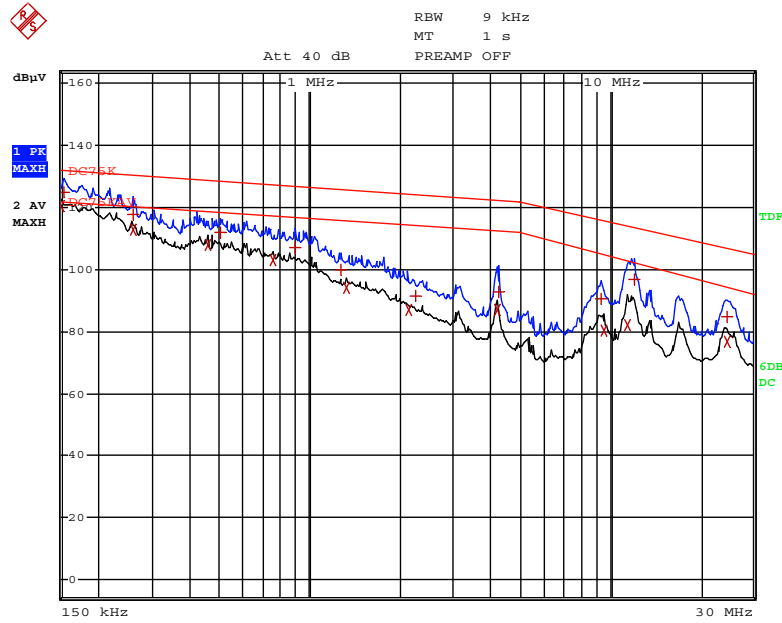
Remark: DELTA (dB) = Level - limit

The emission level in above table is included the reading value, insertion loss and cable loss

Tested by: Dong-Kyu, Kim / Manager

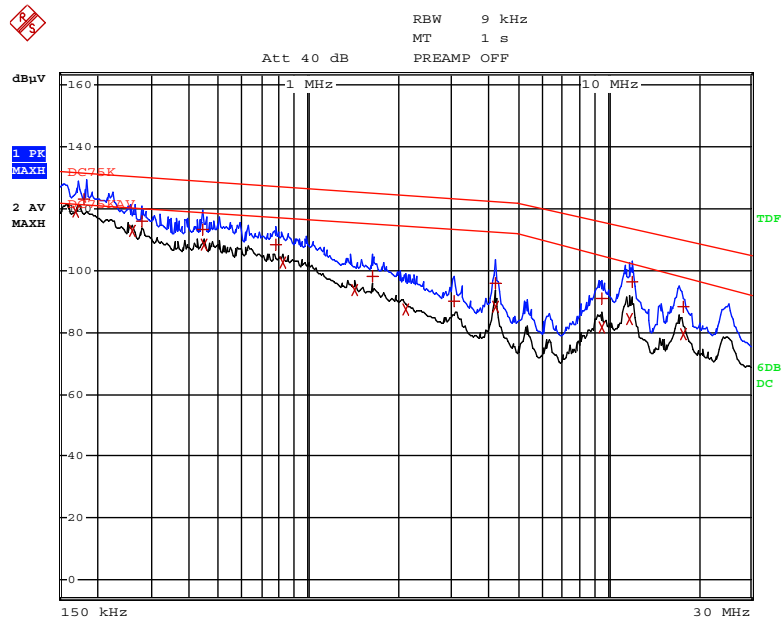
(5) DC Input 4

- Test Date : August 10, 2021
- Resolution bandwidth : 9 kHz
- Frequency range : 0.15 MHz ~ 30 MHz
- Tested Line : POSITIVE LINE



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	DC75K			
Trace2:	DC75KAV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
2 Average	150 kHz	120.40	-1.59	
1 Quasi Peak	154 kHz	124.97	-6.95	
1 Quasi Peak	258 kHz	117.76	-12.69	
2 Average	258 kHz	112.97	-7.48	
2 Average	458 kHz	108.09	-10.72	
1 Quasi Peak	506 kHz	111.96	-16.57	
2 Average	754 kHz	103.23	-14.16	
1 Quasi Peak	898 kHz	107.12	-19.77	
1 Quasi Peak	1.274 MHz	99.75	-26.14	
2 Average	1.33 MHz	94.22	-21.55	
2 Average	2.142 MHz	86.82	-27.59	
1 Quasi Peak	2.254 MHz	91.49	-32.78	
2 Average	4.218 MHz	87.08	-25.39	
1 Quasi Peak	4.274 MHz	92.61	-29.83	
1 Quasi Peak	9.366 MHz	90.69	-25.35	
2 Average	9.498 MHz	80.19	-24.64	
2 Average	11.486 MHz	82.19	-20.51	
1 Quasi Peak	12.038 MHz	96.63	-17.03	
2 Average	24.55 MHz	76.71	-17.52	
1 Quasi Peak	24.594 MHz	84.87	-22.01	

-. Tested Line : NEGATIVE LINE



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	DC75K			
Trace2:	DC75KAV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA	LIMIT dB
2 Average	170 kHz	119.32	-2.32	
1 Quasi Peak	182 kHz	123.10	-8.34	
2 Average	258 kHz	113.02	-7.43	
1 Quasi Peak	278 kHz	116.22	-14.02	
1 Quasi Peak	442 kHz	113.23	-15.68	
2 Average	446 kHz	108.45	-10.44	
1 Quasi Peak	778 kHz	108.26	-19.04	
2 Average	822 kHz	102.58	-14.57	
2 Average	1.422 MHz	93.77	-21.81	
1 Quasi Peak	1.634 MHz	98.22	-26.96	
2 Average	2.126 MHz	87.48	-26.95	
1 Quasi Peak	3.07 MHz	90.25	-33.13	
1 Quasi Peak	4.234 MHz	95.75	-26.72	
2 Average	4.234 MHz	88.44	-24.03	
2 Average	9.502 MHz	81.62	-23.20	
1 Quasi Peak	9.506 MHz	91.12	-24.77	
2 Average	11.858 MHz	84.50	-17.85	
1 Quasi Peak	11.994 MHz	96.34	-17.35	
1 Quasi Peak	17.75 MHz	88.28	-21.69	
2 Average	17.842 MHz	79.44	-18.35	

Remark: DELTA (dB) = Level - limit

The emission level in above table is included the reading value, insertion loss and cable loss

Tested by: Dong-Kyu, Kim / Manager

5.2 CONDUCTED COMMON MODE DISTURBANCE AT TELECOMMUNICATION PORTS

5.2.1 Operating environment

Temperature : 26.0 °C
Relative humidity : 47.0 % R.H.

5.2.2 Test set-up

The EUT and all local support equipment were placed on a non-metallic support 0.1 m above a reference ground plane (RGP) and were put into operation according to the specified operating mode. Telecommunication line for the EUT connected to associate equipment through an Impedance Stabilization Network (ISN) which has a common mode termination impedance of 150 Ω to the telecommunication port under test. The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

The test set-up photos are included in appendix II.

5.2.3 Measurement uncertainty

Conducted emission, quasi-peak detection : 2.7 dB
Conducted emission, average detection : 2.7 dB

Measurement uncertainty is calculated in accordance with CISPR 16-4-2. The measurement uncertainty is given with a confidence of 95 % with the coverage factor, $k = 2$.

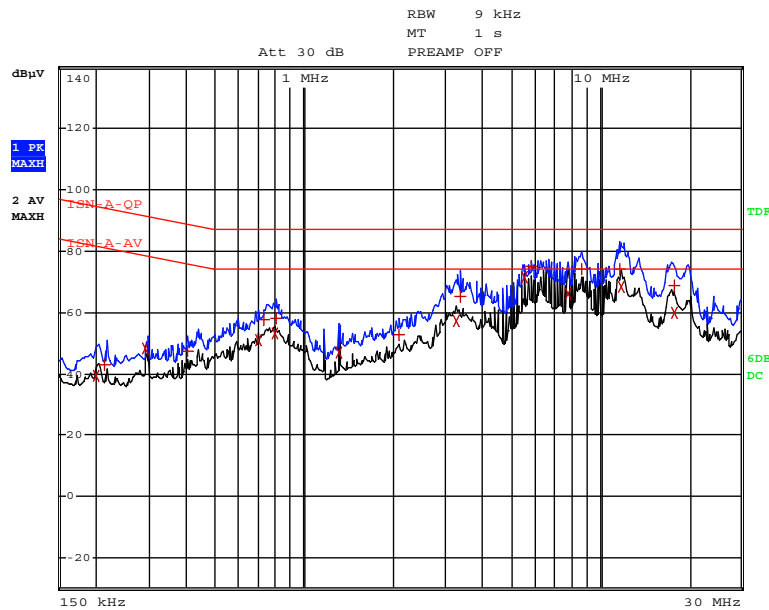
5.2.4 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	ESCI	Rohde & Schwarz	EMI Test Receiver	101419	Oct. 19, 2020 (1Y)
■ -	NTFM 8158 CAT5	SCHWARZBECK	8-WIRE ISN	252	Oct. 20, 2020 (1Y)

All test equipment used is calibrated on a regular basis.

5.2.5 Test data

- Test Date : August 10, 2021
- Resolution bandwidth : 9 kHz
- Frequency range : 0.15 MHz ~ 30 MHz
- Remark : LAN Port



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	ISN-A-QP		
Trace2:	ISN-A-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
2 Average	202 kHz	39.55	-41.97
1 Quasi Peak	214 kHz	42.98	-51.06
2 Average	294 kHz	48.16	-30.24
1 Quasi Peak	402 kHz	47.55	-41.25
2 Average	702 kHz	50.78	-23.21
1 Quasi Peak	730 kHz	57.77	-29.22
2 Average	794 kHz	53.01	-20.98
1 Quasi Peak	806 kHz	57.95	-29.04
2 Average	1.318 MHz	46.95	-27.04
1 Quasi Peak	2.094 MHz	52.77	-34.22
2 Average	3.266 MHz	57.40	-16.59
1 Quasi Peak	3.386 MHz	65.28	-21.71
2 Average	5.566 MHz	71.62	-2.37
1 Quasi Peak	5.858 MHz	75.06	-11.93
2 Average	7.766 MHz	66.09	-7.90
1 Quasi Peak	8.634 MHz	74.12	-12.87
1 Quasi Peak	11.686 MHz	74.22	-12.77
2 Average	11.862 MHz	68.47	-5.52
1 Quasi Peak	17.782 MHz	68.99	-18.00
2 Average	17.786 MHz	60.06	-13.93

Tested by: Dong-Kyu, Kim / Manager

5.3 RADIATED ELECTROMAGNETIC FIELD

5.3.1 Operating environment

Temperature : 26 °C
Relative humidity : 47 % R.H.

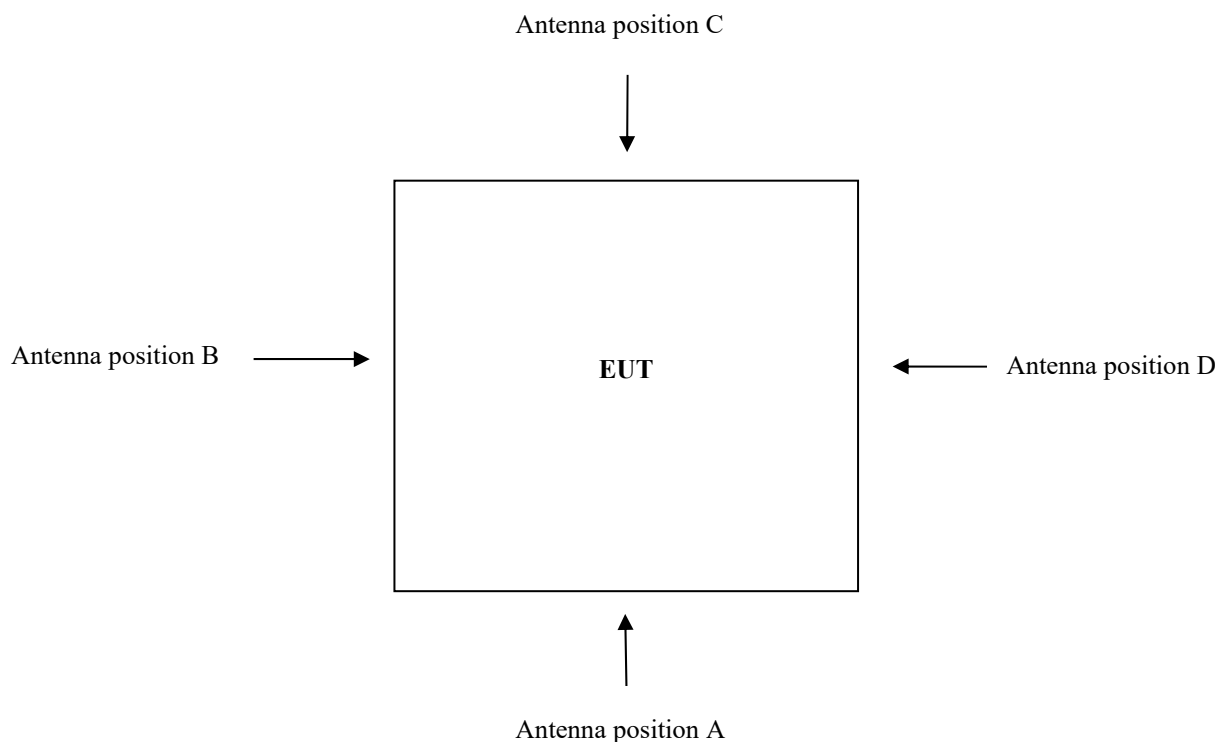
5.3.2 Test set-up

For the measurement, the ground plane was placed as close to the system as possible and the antenna distance from the EUT was 3 m. The measurement was taken in the mode of operation generating the highest disturbance field strength from the EUT.

For the measurement, the used antenna was a TRILOG broadband antenna and the center of the antenna height was fixed at 2.0 m above the ground. For getting maximum disturbance field strength from the EUT, the antenna polarization was performed in horizontal and vertical polarization.

The measurement was detected by overview sweeps in peak mode and measurements in quasi-peak mode may be made in some particular direction.

The test set-up photos are included in appendix III.



5.3.3 Measurement uncertainty

Radiated emission electric field intensity, 30 MHz ~ 1 000 MHz : 4.4 dB

Measurement uncertainty is calculated in accordance with CISPR 16-4-2. The measurement uncertainty is given with a confidence of 95 % with the coverage factor, $k = 2$.

If the measured result is a little bit less than the upper limit line where a half of uncertainty range,

It can be declared that will satisfy in adaption of the confidence level smaller than 95%.

5.3.4 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	ESCI	Rohde & Schwarz	EMI Test Receiver	101419	Oct. 19, 2020(1Y)
■ -	VULB9168	Schwarzbeck	TRILOG Super Broadb Test Antenna	0922	Mar. 15, 2021 (2Y)

All test equipments used are calibrated on a regular basis.

5.3.5 Test data

- Test Date : August 10, 2021
- Resolution bandwidth : 120 kHz
- Detector type : Quasi peak
- Frequency range : 30 MHz ~ 1 000 MHz
- Measurement distance : 3 m

Frequency (MHz)	Ant. Pol. (H/V)	Position (Degree)	Total Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)
33.36	H	0	33.34	60.00	26.65
39.48	V	90	34.93	60.00	25.06
49.04	V	0	55.09	60.00	4.90
50.32	H	0	56.06	60.00	3.93
53.96	H	90	47.08	60.00	12.91
66.52	V	90	34.18	60.00	25.81
76.68	H	180	31.02	60.00	28.97
97.52	V	90	30.46	60.00	29.53
152.84	H	90	36.22	60.00	23.77
242.60	H	0	33.25	60.00	26.74
282.48	V	270	34.75	60.00	25.24
363.64	V	0	36.22	60.00	23.77
455.28	V	270	38.95	60.00	21.04
477.60	V	180	39.21	60.00	20.78
589.00	H	180	42.80	60.00	17.19
599.76	H	270	43.19	60.00	16.80
699.80	H	270	49.47	60.00	10.52
770.84	V	270	46.58	60.00	13.41
793.24	H	180	46.74	60.00	13.25
851.88	V	180	47.01	60.00	12.98

Remark: "H": Horizontal, "V": Vertical.

Margin (dB) = Limit – Total Level (dBμV/m)

Total level (dBμV/m) = Reading value + Antenna factor + Cable loss

Tested by: Dong-Kyu, Kim / Manager

6. IMMUNITY TESTS

6.1 ELECTROSTATIC DISCHARGE IMMUNITY TEST

The **measurement of the Immunity Against Electrostatic Discharge** was performed in a manufacturer's location.

Test Location: In situ.

Date: August 10, 2021

6.1.1 Operating environment

Ambient temperature	24.1 [°C]
Relative humidity	51.2 [% R.H.]
Atmospheric pressure	1 000.5 [hPa]

6.1.2 Test set-up

The EUT was put into operation according to the specified operating mode.

The test set-up photo is included in appendix IV.

6.1.3 Measurement uncertainty

It has been demonstrated that the ESD generator meets the specified requirements in the standard with at least a 95 % confidence.

6.1.4 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	DITO	EM TEST	ESD Simulator	0404-23	Oct. 19, 2020 (1Y)

All test equipment used is calibrated on a regular basis.

6.1.5 Test data

Test levels Contact discharge 4 kV, Air discharge 2 / 4 / 8 kV

Number of discharges : 10 at all test point

Polarity : Positive / Negative

The EUT Position : Floor Standing

Required performance criterion : B

Test result : Met criterion A

Monitoring of the EUT : Observed 3.7 section of this report

The test points of the EUT are each location on the surface touchable by hand (see test point in next page) and VCP - 0.1 m from the four sides of the EUT.

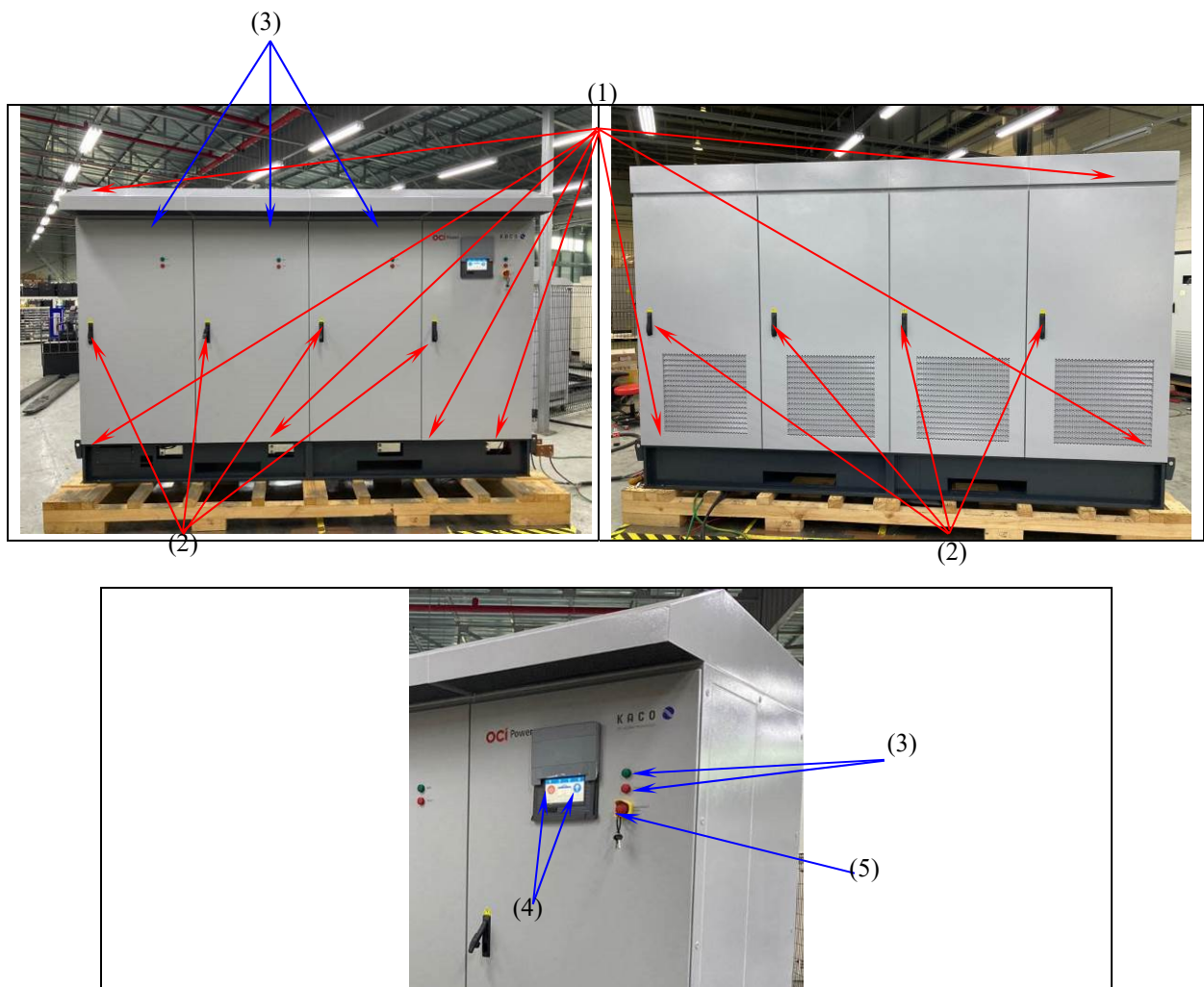
The results of selected test points of the EUT are listed in below table.

Point	Test level [\pm kV]	Pass / Fail	Description
Enclosure & Screws	4 (Contact)	Pass	There was no deviation from normal operation condition during and after test.
Key hole	4 (Contact)	Pass	
LED	2 / 4 / 8 (Air)	Pass	
Display	2 / 4 / 8 (Air)	Pass	
Button	2 / 4 / 8 (Air)	Pass	
VCP	4 (Indirect)	Pass	


Tested by: Dong-Kyu, Kim / Manager

6.1.6 ESD Test Point Table

ESD Point	Discharge voltage [\pm kV]	Results
(1) Enclosure & Screws	4 (Contact)	Met Criterion A
(2) Key Hole	4 (Contact)	Met Criterion A
(3) LED	2 / 4 / 8 (Air)	Met Criterion A
(4) Display	2 / 4 / 8 (Air)	Met Criterion A
(5) Button	2 / 4 / 8 (Air)	Met Criterion A
VCP	4 (Indirect)	Met Criterion A



6.2 RADIATED RF-ELECTROMAGNETIC FIELD IMMUNITY TEST

The measurement of the Immunity Against Radiated RF-Electromagnetic Field was performed in a manufacturer's location.

Test Location: In situ.

Date: August 12, 2021

6.2.1 Operating environment

Ambient temperature	24.9 [°C]
Relative humidity	53.2 [% R.H.]
Atmospheric pressure	999.9 [hPa]

6.2.2 Test set-up

The EUT was put into operation according to the specified operating mode.

The test set-up photo is included in appendix V.

6.2.3 Measurement uncertainty

The measurement uncertainty is 1.2 dB

Measurement uncertainty is calculated in accordance with UKAS Lab34. The measurement uncertainty is given with a confidence of 95 %. The measurement uncertainty is calculated as the uncertainty of the electric field intensity detected by the probe(s). The uncertainty calculations exclude influence of phenomena like inhomogeneity of the electric field intensity.

6.2.4 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	SSA511-OPT1A	SUNGSAN	Amplifier	SSEC0001	N/A
■ -	F-140	FCC	BULK CURRENT INJECTION PROBE	190355	Feb. 25, 2021 (1Y)
■ -	ATT6/75	EM TEST	ATTENUATOR	1012-58	Oct. 19, 2020 (1Y)
■ -	CWS500N1	EM TEST	CONTINUOUS WAVE GENERATOR	P1247105431	Mar. 02, 2021 (1Y)
■	DC100C	SUNGSAN	DIRECTIONAL COUPLER	0004	Oct. 19, 2020 (1Y)

All test equipments used are calibrated on a regular basis.

6.2.5 Test data

Test level : 10 V/m (AM 80 %, 1 kHz sine wave)

Frequency range : 80 MHz ~ 1 000 MHz (10 V/m)

Frequency step : 1 %

Dwell time at each frequency : 3 s

Coupling methods : AC/DC mains, Control line, Signal line– Bulk Current Injection Probe (BCIP)

Type of line & length : Unshielded, 5.0 m (AC Output, DC Input 1, DC Input 2, DC Input 3, DC Input 4)
Unshielded, 10.0 m (Signal line – LAN line)
Unshielded, 7.0 m (Ground)

Distance of antenna – EUT : 3 m

The EUT Position : Floor Standing

Required performance criterion : A

Test result : Met criterion A

Monitoring of the EUT : Observed 3.7 section of this report

The results of test are listed in below table.

Freq. Range [MHz]	Coupling Method	Line for test	Test level[V]	Pass/ Fail	Description
80 ~ 1000	BCIP	AC Output	10	Pass	There was no deviation from normal operation condition during and after test.
80 ~ 1000	BCIP	DC Input 1,2,3,4	10	Pass	
80 ~ 1000	BCIP	Signal line	10	Pass	
80 ~ 1000	BCIP	Ground	10	Pass	


Tested by: Dong-Kyu, Kim / Manager

6.3 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

The **measurement of the Immunity Fast Transient/Burst** was performed in a manufacturer's location.

Test Location: In situ.

Date: August 13, 2021

6.3.1 Operating environment

Ambient temperature	24.3 [°C]
Relative humidity	53.2 [% R.H.]
Atmospheric pressure	1 001.3 [hPa]

6.3.2 Test set-up

The EUT was put into operation according to the specified operating mode.

The test set-up photo is included in appendix VI.

6.3.3 Measurement uncertainty

It has been demonstrated that the burst generator meets the specified requirements in the standard with at least a 95 % confidence.

6.3.4 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	AXOS 8	Haefely Test AG	EMC Compact Tester	179250	Oct. 15, 2020 (1Y)
■ -	FP-EFT 32M	Haefely Test AG	Coupling Network	181467	Oct. 15, 2020 (1Y)
■ -	CCI	EM TEST	CAPACITIVE COUPLING CLAMP INDUSTRY	P1818215252	Mar. 24, 2021 (1Y)

All test equipments used are calibrated on a regular basis.

6.3.5 Test data

Test level	: 2 kV (AC Output), 1 kV (Signal Cable/DC Input)
Burst frequency	: 5 kHz
Polarity	: Positive / Negative
Coupling time	: 60 s
Coupling methods	: AC Output - Coupling Decoupling Network (CDN) DC Input/Signal lines - Capacitive Coupling Clamp (CCC)
Lines for test	: AC Output/DC Input of the EUT Signal lines of the EUT
Type of line & length	: Unshielded, 5.0 m (AC Output/ DC Input-1,2,3,4) Unshielded, 10.0 m (Signal line – LAN line)
EUT-position	: Floor Standing
Required performance criterion	: B
Test result	: Met criterion A
Monitoring of the EUT	: Observed 3.7 section of this report

The results of test are listed in below table.

Line for test		Coupling Method	Test level [± kV]	Pass/Fail	Description
AC Output	L1/L2/L3/PE	CDN	2	Pass	There was no deviation from normal operation condition during and after test.
	L1+L2/L2+L3/L1+L3/ L1+PE/L2+PE/L3+PE	CDN	2	Pass	
	L1+L2+L3/L1+L2+PE/ L1+L3+PE/L2+L3+PE	CDN	2	Pass	
	L1+L2+L3+PE	CDN	2	Pass	
DC Input	P-N-PE	CCC	1	Pass	
Signal Line (LAN line)		CCC	1	Pass	

Tested by: Dong-Kyu, Kim / Manager

6.4 SURGE IMMUNITY TEST

The **measurement of the Immunity Surge Transients** was performed in a manufacturer's location.

Test Location: In situ.

Date: August 13, 2021

6.4.1 Operating environment

Ambient temperature	24.3 [°C]
Relative humidity	53.2 [% R.H.]
Atmospheric pressure	1 001.3 [hPa]

6.4.2 Test set-up

The EUT was put into operation according to the specified operating mode.

The test set-up photo is included in appendix VII.

6.4.3 Measurement uncertainty

It has been demonstrated that the surge generator meets the specified requirements in the standard with at least a 95 % confidence.

6.4.4 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	AXOS 8	Haefely	EMC Compact Tester	179250	Oct. 15, 2020 (1Y)
■ -	FP-SURGE 32A	Haefely	THREE-PHASE COUPLING NETWORK	181710	Oct. 15, 2020 (1Y)

All test equipments used are calibrated on a regular basis.

6.4.5 Test data

Test level : 0.5, 1 kV (Differential mode), 0.5, 1, 2 kV (Common mode)

Number of surge : 5 surges / polarity

Polarity : Positive / Negative

Angle : 0° / 90° / 180° / 270°

Repetition rate : 60 s

Coupling methods : AC Output - Coupling Decoupling Network (CDN)

Lines for test : AC Output Power of the EUT

Type of line & length : Unshielded, 5.0 m (AC Output)

The EUT-position : Floor Standing

Required performance criterion : B

Test result : Met criterion A

Monitoring of the EUT : Observed 3.7 section of this report

The results of test are listed in below table.

Line for test	Coupling Method	Test level [± kV]	Pass/Fail	Description
AC Output (L1+L2 / L1+L3 / L2+L3)	CDN	0.5, 1	Pass	There was no deviation from normal operation condition during and after the test.
AC Output (L1+PE / L2+PE / L3+PE)	CDN	0.5, 1, 2	Pass	


Tested by: Dong-Kyu, Kim / Manager

6.5 CONDUCTED RF FIELDS IMMUNITY TEST

The **measurement of the Immunity Against Conducted RF** was performed in a manufacturer's location.

Test Location: In situ.

Date: August 12, 2021

6.5.1 Operating environment

Ambient temperature	24.9 [°C]
Relative humidity	53.2 [% R.H.]
Atmospheric pressure	999.9 [hPa]

6.5.2 Test set-up

The EUT was put into operation according to the specified operating mode.

The test set-up photo is included in appendix VIII.

6.5.3 Measurement uncertainty

The measurement uncertainty is 1.6 dB.

Measurement uncertainty is calculated in accordance with EN 61000-4-6 Annex G. The measurement uncertainty is given with a confidence of 95 %.

6.5.4 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	ATT6/75	EM TEST	ATTENUATOR	1012-58	Oct. 19, 2020 (1Y)
■ -	F-120-9A	FCC	BULK CURRENT INJECTION PROBE	181592	Feb. 25, 2021 (1Y)
■ -	CWS500N1	EM TEST	CONTINUOUS WAVE GENERATOR	P1247105431	Mar. 02, 2021 (1Y)

All test equipments used are calibrated on a regular basis.

6.5.5 Test data

Test level : 10 V (AM 80 %, 1 kHz sine wave)

Frequency range : 0.15 MHz ~ 80 MHz

Frequency step : 1 %

Dwell time at each frequency : 3 s

Coupling methods : AC Output and DC Input - Bulk Current Injection Probe (BCIP)
Signal lines - Bulk Current Injection Probe (BCIP)

Lines for test : AC Output/DC Input of the EUT
Signal lines of the EUT

Type of line & length : Unshielded, 5.0 m (AC Output / DC Input-1,2,3,4)
Unshielded, 10.0 m (Signal line – LAN line)
Unshielded, 7.0 m (Ground)

EUT-position : Floor Standing

Required performance criterion : A

Test result : Met criterion A

Monitoring of the EUT : Observed 3.7 section of this report

The results of test are listed in below table.

Line for Test	Coupling Method	Test level [V]	Pass/Fail	Description
AC Output (3 phase)	BCIP	10	Pass	There was no deviation from normal operation condition during and after the test.
DC Input (+/-)	BCIP	10	Pass	
Signal line	BCIP	10	Pass	
Ground	BCIP	10	Pass	


Tested by: Dong-Kyu, Kim / Manager

6.6 WALKIE-TALKIE TEST

The **measurement of the Immunity Against** Walkie-talkie test were performed in a manufacturer's location.

Test Location: Clean room.

Date: August 12, 2021

6.6.1 Operating environment

Ambient temperature	24.9 [°C]
Relative humidity	53.2 [% R.H.]
Atmospheric pressure	999.9 [hPa]

6.6.2 Test set-up

The walkie-talkie test was performed according to IEC 61000-4-3 with two digital cellular phones and a walkie-talkie. They were held approx. 50 cm from the surface of the EUT. The EUT was checked on all points of its surface where radio waves can enter.

The test set-up photos are included in appendix X.

6.6.3 Test equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - DIR-825	D-link	Wire-Wireless router	F3WR1B4000324	N/A
■ - DRT-880	RadioTek	Digital wireless device	19090406	N/A
■ - Iphone 7 plus	Apple, Inc.	Mobile Phone	N/A	N/A

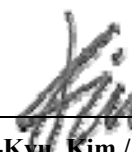
All test equipments used is calibrated on a regular basis.

6.6.4 Test data

Frequency range : 400 MHz ~ 470 MHz, 1 900 MHz, 2 400 MHz, 5 000 MHz
Operating time : More than 60 s
Coupling methods : Walkie talkie, Wire-wireless router, Mobile phone
Required performance criterion : A
Test result : Met criterion A
Monitoring of the EUT : Observed 3.7 section of this report

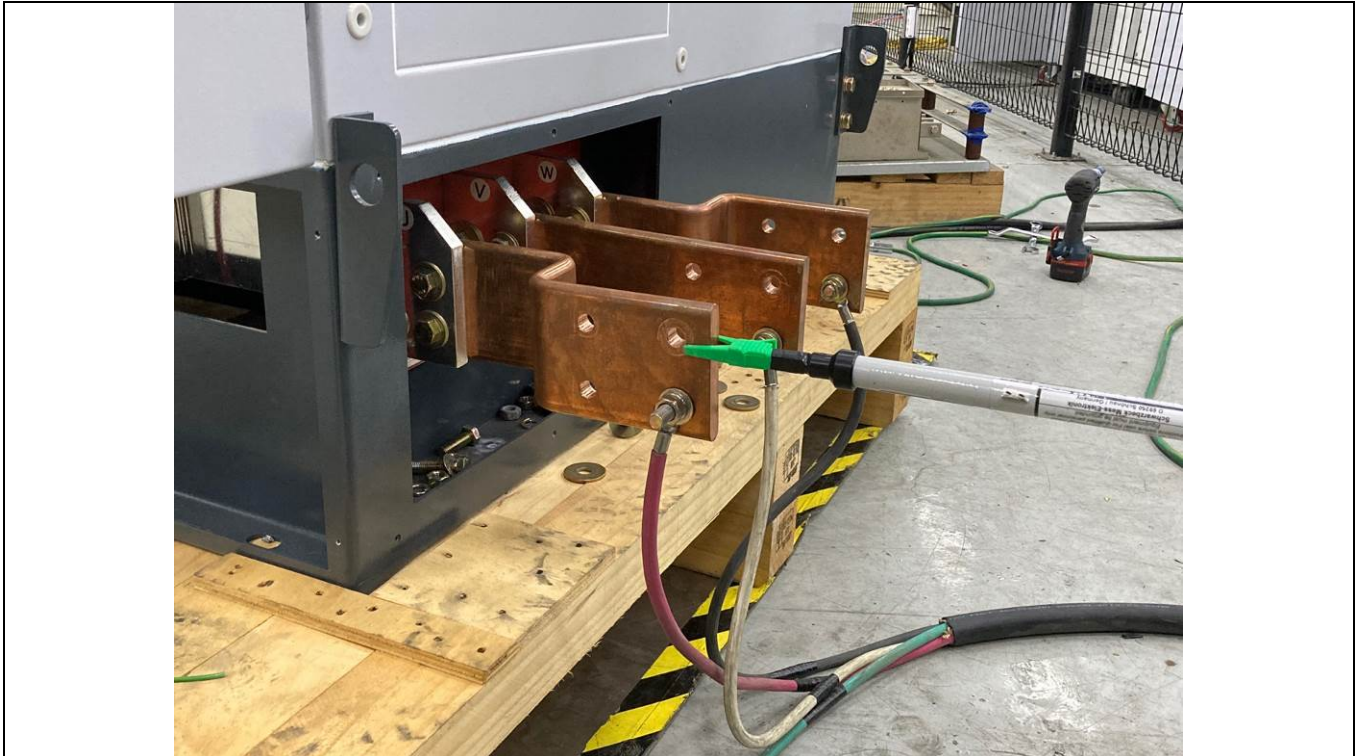
The results of test are listed in below table.

Field polarization	Frequency	Result	Remarks
Enclosure	400 MHz ~ 470 MHz	Pass	There was no deviation from normal operating condition.
	1 900 MHz		
	2 400 MHz		
	5 000 MHz		

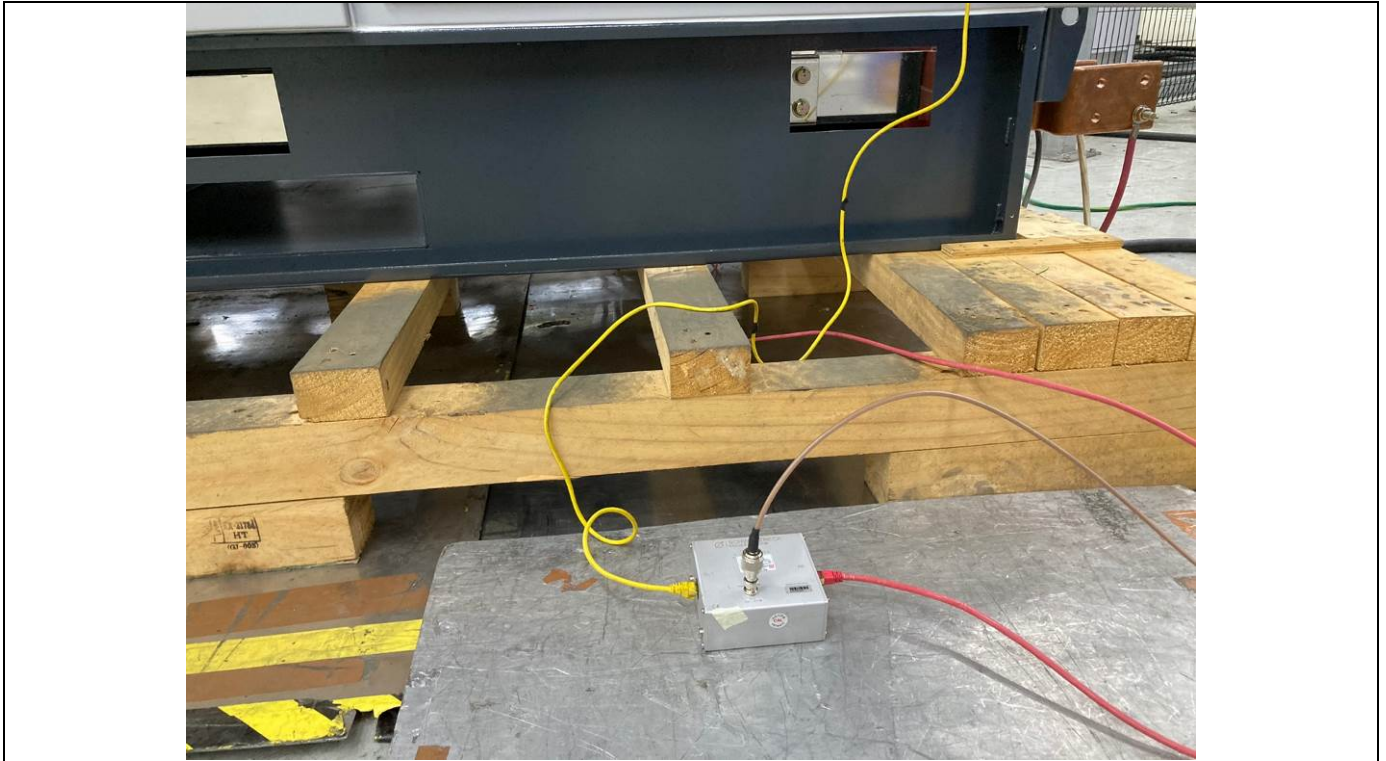


Tested by: Dong-Kyu, Kim / Manager

APPENDIX I - TEST SET-UP PHOTOS: (Mains Terminal Continuous Disturbance Voltage)



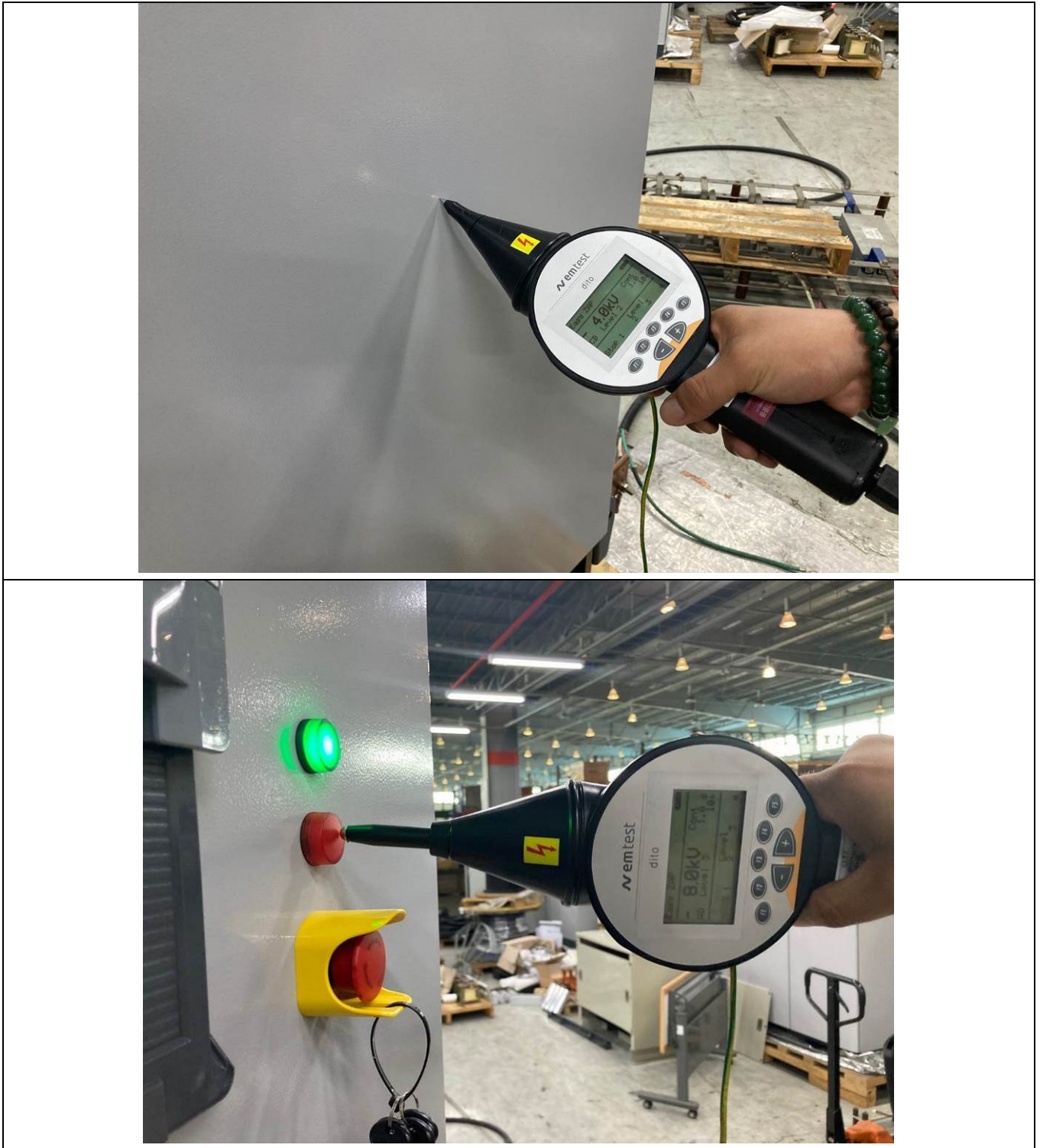
APPENDIX II - TEST SET-UP PHOTOS: (Conducted Common Mode Disturbance at Telecommunication Ports)



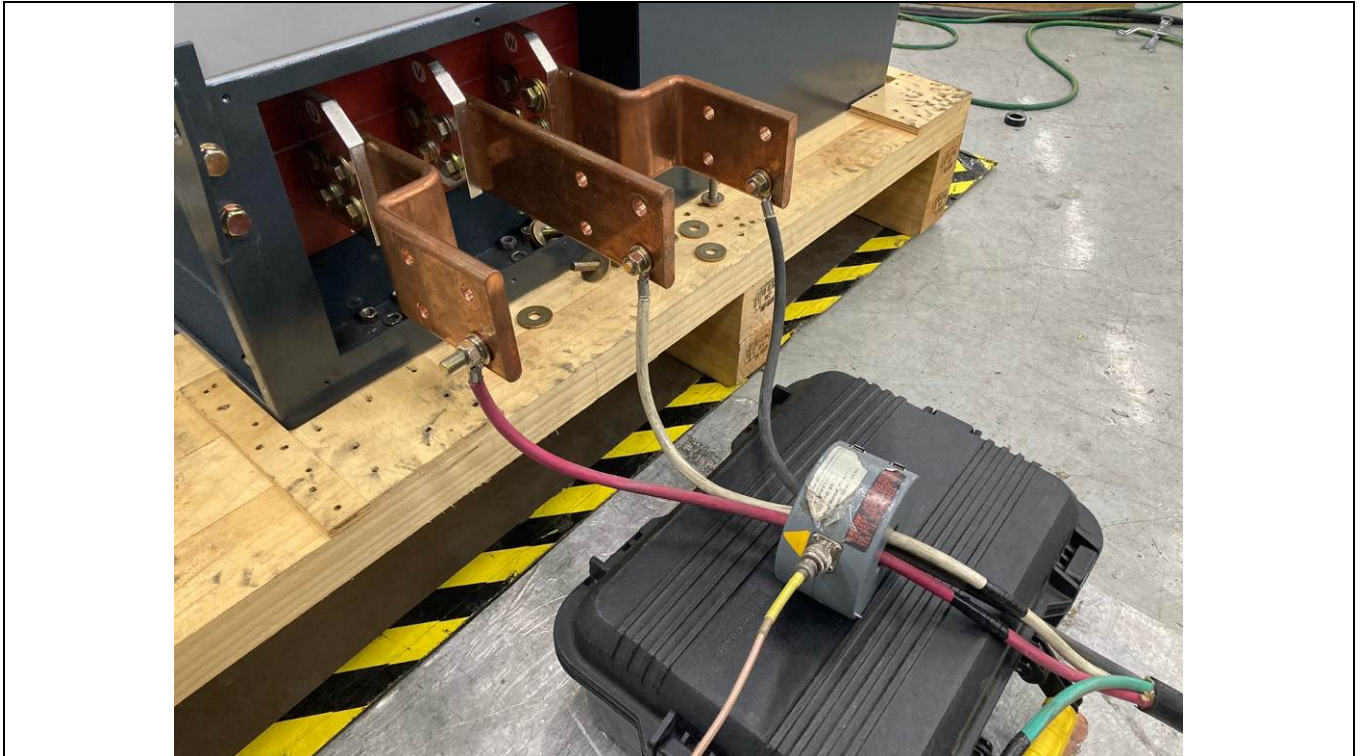
APPENDIX III - TEST SET-UP PHOTOS: (Radiated Electromagnetic Field)



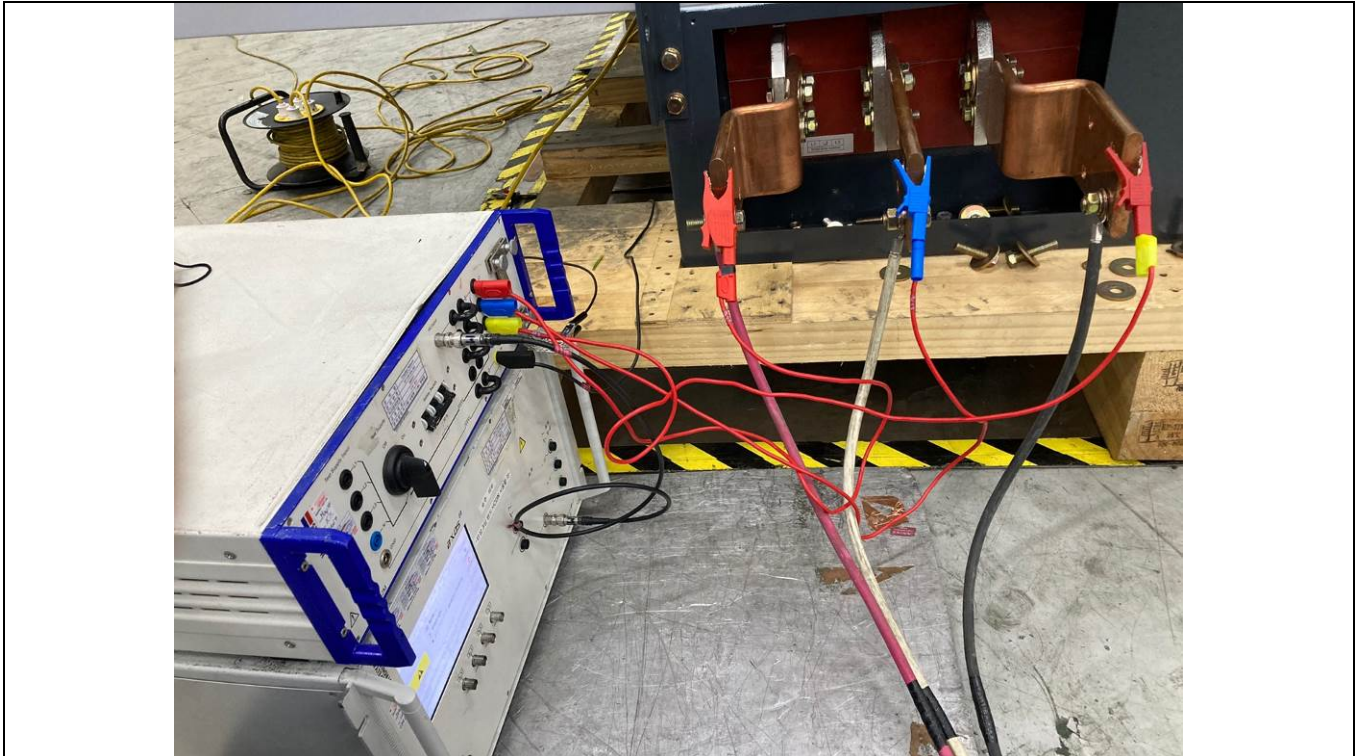
APPENDIX IV - TEST SET-UP PHOTO: (ESD)



APPENDIX V - TEST SET-UP PHOTO: (RF E- FIELD)



APPENDIX VI - TEST SET-UP PHOTO: (EFT/BURST)



APPENDIX VII - TEST SET-UP PHOTO: (SURGE)



APPENDIX IX - TEST SET-UP PHOTO: (Walkie-Talkie test)



APPENDIX X - PHOTOGRAPHS OF THE PRODUCT





KACO new energy. OCI Power Co., Ltd. Made by OCI POWER		OP3000 TL-H OD		
		Part number		
		Serial number	3000kO19O00001	Year Q1 / 2021
				
PV Input	Vmax PV / Isc PV (max) / Inom PV	1500V / 3896A / 3472A		
	V-MPP at Pnom / V- range	890V - 1300V		
AC Output	Nominal voltage	600V, 3W		
	Voltage range continuous operation	528Vac - 660Vac		
	Rated current	2887A		
	Frequency nominal	50Hz/60Hz		
	Overcurrent protection	3320A		
	Operating Frequency Range	59.3 - 60.5 Hz		
Power	Snom	3330kVA		
	Pnom	3000kW		
	Reactive power	cos phi	0 - 100% Snom	1 - 0 ind/cap
Environ-ment	Temperature range	-20°C ~ +60°C		
	Protection class / Ingress protection	I / IP65		
ARC fault circuit protection		non		
interface protection according to country specific requirements, details see manual				
No galvanic separation				