

# **TEST REPORT**



### Dt&C Co., Ltd.

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





1. Report No: DREKFCC2308-0116

2. Customer

• Name : Cobra Electronics Corporation

Address: 1701 Golf Road, Suite 3-900, Rolling Meadows, IL 60008, U.S.A.

3. Use of Report : Grant of Certification

4. Product Name / Model Name : Radar/Laser Detector with GPS Receiver

connectable to smartphone via BLE / RAD 700i

(FCC ID: BBOST55R)

5. Test Method Used: ANSI C63.4:2014

FCC Part 15 Subpart B

(Rader detector)

6. Date of Test: Aug. 17. 2023

7. Location of Test: Permanent Testing Lab

☐ On Site Testing

(Address: Refer to the attached)

8. Testing Environment : Temperature 21 °C , Humidity 64 % 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.

This laboratory is not accredited for the test results marked. " \*

Tested by

Technical Manager

Affirmation

lame: MyungSuk Oh

Name:

ne: HyungJun Kim

The above test report is the accredited test result by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA.

Aug. 18. 2023

Dt&C Co., Ltd.

Accredited by KOLAS, Republic of KOREA

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, 154 beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea <a href="http://www.dtnc.net">http://www.dtnc.net</a>

Tel: +82-31-321-2664 Fax: +82-31-321-1664

### 2. Test Laboratory

**Address of Laboratory** 

Branch site	42, Yurim-ro 154 beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea
Satellite facilities-1	46, Yurim-ro 154 beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea
Satellite facilities-2	38, Yurim-ro 154 beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea
Satellite facilities-3	28, Baengnyeong-ro 20 beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea

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

Certificate	Nation	Agency	Code	Remark
	Korea	KOLAS	393	ISO/IEC 17025
Accreditation	South Africa	SABS	0006	ISO/IEC 17025
	Ghana	NCA	NCA agreement 23rd,Oct,2018	-
	USA	FCC	KR0034	Designation
	Canada	IC	KR0034	Designation
Site Filing	Japan	VCCI	C-11427, R-13385, R-14076, R-14180, R-14496, T-11442, G-10338, G-10754, G-10815, G-20051	Registered
	Korea	KC	KR0034	Designation
Certification	Germany	TUV	CARAT 089112 0010 Rev.00	ISO/IEC 17025
	Russia	RMRS	22.03.01.01196.296	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".













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## 3. General Information of EUT

Applicant	Cobra Electronics Corporation 1701 Golf Road, Suite 3-900, Rolling Meadows, IL 60008, U.S.A.
Manufacturer	BG T&A Co. 5~6F, 153-18, LS-ro, Gunpo-si, Gyeonggi-do, 15808, Rep. of KOREA
Factory	BAEK GEUM PHILIPPINES CORPORATION Unit 1,2 & 3 Orient Goldcrest Calamba Premiere Industrial Park Bldg.1 Lot 1 Block 4 Brgy. Batino, 4027 Calamba City, Laguna, Philippines
Product Name	Radar/Laser Detector with GPS Receiver connectable to smartphone via BLE
Model Name	RAD 700i
Add Model Name	None
Add Model Difference	None
Software Version	M0.2.3.2
Hardware Version	REV.C
Maximum Internal Frequency	14938.5 MHz
Rated Power	DC 12 V
FCC ID	BBOST55R
RF Module Name	None
Remarks	[RF Frequency] - X Band 10.525 ± 0.050 GHz - K Band 24.125 ± 0.125 GHz - Ka Band 34.700 ± 1.300 GHz

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	X-band 10.525 GHz	The signal generator is set to a frequency of 10.525 GHz, and the EUT detects 10.525 GHz as an X-band to collect data.			
2	K-band 21.150 GHz	The signal generator is set to a frequency of 24.150 GHz, and the EUT detects 24.150 GHz as an Y-band to collect data.			
3	Ka-band 34.7 GHz	The signal generator is set to a frequency of 34.7 GHz, and the EUT detects 34.7 GHz as an Ka-band to collect data.			
* Not Used Port (For Maintenance) MICRO USB Port					

## 4.3 Test Configuration Mode

No.	Mode	Description
1	RADAR	The EUT connected DC POWER SUPPLY.

















### 4.4 Supported Equipment

Used*	Product Type	Manufacturer	Model	Serial number	Remarks
AE	Signal Generator	ETS-Lindgren	MG3695C	N/A	ı
AE	3116C	ETS-Lindgren	3116C	213177	=

<sup>\*</sup>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
DC IN	DC	2.0	Non shield	Plastic	-

\*Abbreviations:

AC = AC Power Port DC = DC Power Port N/E = Non-Electrical

I/O = Signal Input or Output PortTP = Telecommunication Ports

## 4.6 Test Voltage and Frequency

Case	Voltage (V)	Frequency (Hz)	Phases	Remarks
1	DC 12	-	-	None











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### 5. Test Summary

Test Items	Applied Standards	Results
Conducted Disturbance	ANSI C63.4 : 2014	N/A (Note 1)
Radiated Disturbance	ANSI C63.4 : 2014	C (Note 3)
Antenna Power Conduction	ANSI C63.4:2014	N/A (Note 2)

C=Comply N/C=Not Comply N/T=Not Tested N/A=Not Applicable

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

Measurement Uncertainty				
Test Items	U (k = 2)			
Conducted Disturbance (9 kHz~ 30 MHz)	Mains : 3.6 dB Signal : 6.0 dB			
Conducted Disturbance (150 kHz ~ 30 MHz)	Mains : 3.4 dB Signal : 6.0 dB			
Radiated Disturbance (3m)	Below 1 GHz : 5.86 dB Above 1 GHz : 6.98 dB			
Radiated Disturbance (10m)	Below 1 GHz : 4.92 dB Above 1 GHz : 6.98 dB			
Antenna Power Conduction	N/A			

#### - Conducted Disturbance

Frequen [MHz]	•	Pol.	Result [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]
-		-	-	-	-	-

#### -Radiated Disturbance

Frequency [MHz]	Pol.	Result [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]
11893.140	V	64.75	Peak	74.00	9.25

#### -Antenna Power Conduction

Frequency [MHz]	Result [dBµV/m]	Detector	Limit [dBµV/m]	Margin [dB]
-	-	-	-	-





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Note 1) This test was not required because EUT was used DC power.

Note 2) This test was not required because EUT has not port about this test.

Note 3) the EUT is a product with the RADAR DETECTOR function, and the RE test in the 11.7 ~ 12.2 GHz frequency range was conducted.







### 6. Test Environment

Test Items	Test date (YYYY-MM-DD)	Temp. (℃)	Humidity (% R.H.)	Pressure (kPa)
Radiated Disturbance	2023-08-17	21	64	=



















### 7. Test Results: Emission

### 7.1 Conducted Disturbance

ANSI C63.4	Mains terminal disturbance voltage Result								
Method: The AMN placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane. This distance was between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment were at least 0,8 m from the AMN. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN. The measuring port of the LISN for EUT was connected to spectrum analyzer. Using conducted emission test software, the emissions were scanned with peak detector mode. After scanning over the frequency range, suspected emissions were selected to perform final measurement. When performing final measurement, the receiver was used which has Quasi-Peak detector and CISPR Average detector. For (0.15 ~ 30) MHz frequency range, Quasi-Peak detector with 10 kHz RBW and 30 kHz VBW was used. By varying the configuration of the test sample and the cable routing it was attempted to maximize the emission.									
Fully configured sample scanned ov Frequency range on each side of line Measureme									
er the following fre	quency range	150 kHz to 30 MHz		Mains					
EUT mo	de	Test configuration mode		N/A					
(Refer to cla	uses 4)	EUT Operation mod	N/A						
		Limits - Class A							
Frequency (MHz)		Limit	dΒμV						
rrequeries (mriz)		Quasi-Peak		Average					
0.15 to 0.50		79		66					
0.50 to 30		73	60						
		Limits – Class B							
Fraguency (MU=)		Limit dBμV							
Frequency (MHz)		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			
-	-	-	-	-	-			

#### 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)

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













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**ANSI C63.4** 

Report No.: DREKFCC2308-0116 (FCC ID: BBOST55R)

Radiated disturbance 30 MHz -40 GHz\*\*





Result

### 7.2 Radiated Disturbance

ANSI C03.4		Naulateu ui	stui barice	30 IVII 12	2 –40 GHZ		Nesuit	
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.								
EUT mode		Test configu	ration mod	le	1			
(Refer to clauses	s 4)	EUT Opera	tion mode		1, 2	2, 3		
		Radiated Disturb	ance below	/ 1 000 N	1Hz			
Fragueney rone			Qua	asi-peak	limit dBμV/m			
Frequency rang (MHz)	je	Clas	ss A		Clas	ss B		
(111112)		3 m distance	10 m dis	tance	3 m dis	stance		
30 to 88		49.1	39.	1	40			
88 to 216		53.5	43.5	43.5 43.5				
216 to 960		56.4	46.4	4	46			
960 to 1 000		59.5	49.5 54					
According to 15.109(g), as comply with the standards (CISPR), Pub. 22 shown.	contained		Internation	al Specia	I Committee on Radio			
Frequency rang	je	21 2 442		•	limit dBµV/m			
(MHz)		Class A (10		*)	Class B (10		ce)	
30 to 230			0		30			
230 to 1 000	ad Diaturb		7 20 MU= at a		ement distance of 3			
		Peak limi		illeasur	Average lin		lm	
Frequency rang (GHz)	je	Class A	Class	 В	Class A		ass B	
1 to 40		80	74		60		54	
The test	frequency	range of Radiated D	Disturbance	measu	rements are listed be	elow.		
		ed or used in the de			er frequency of mea		t range	
or on which the	device op	erates or tunes (MH	lz)	(MHz)				
	Below 108					1 000		
108 – 500					1 000			
					1 000 2 000			
		000						

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Above 1 000









5th harmonic of the highest frequency or 40 GHz, whichever is lower



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Measurement Instrument									
Description Model Manufacturer Identifier Cal. Date Cal. D									
MEASUREMENT SOFTWARE	EMI-R VER. 2.00.0177	TSJ	N/A	N/A	N/A				
EMI TEST RECEIVER	ESU40	ROHDE&SCHWARZ	100525	2022.11.29	2023.11.29				
PREAMPLIFIER	MLA-0618-B03-34	TSJ	1785642	2022.12.20	2023.12.20				
HORN ANTENNA	EM-6969	ELECTRO-METRICS	156	2022.12.20	2023.12.20				
(NOTE : THE MEASUREMENT ANTENNAS WERE CALIBRATED IN ACCORDANCE TO THE REQUIREMENTS OF C63.5-2017.)									

Calculation

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

Margin : Limit(dBuV/m) - Result(dBuV/m)











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Radiated disturbance at (11.7 ~ 12.2) GHz _Peak Measurement data							
Test configuration mode	1	EUT Operation mode	1				
Test voltage (V)	DC 12	Test Frequency (Hz)	-				

Date 2023-08-17

 Order No.
 DTNC2305-03168

 Power Supply
 DC 12 V

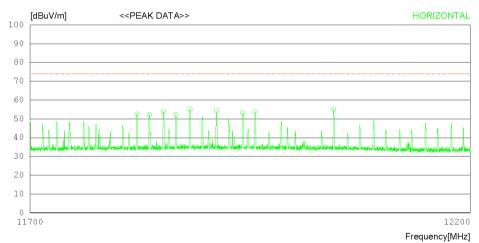
 Temp/Humi
 21 'C 64 % R.H.

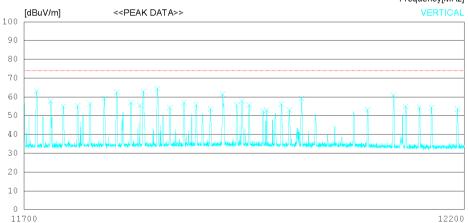
 Test Condition
 X Band (10.525 GHz)

Memo

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20





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Frequency[MHz]



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Date 2023-08-17

Order No. DTNC2305-03168
Power Supply DC 12 V
Temp/Humi 21 'C 64 % R.H.
Test Condition X Band (10.525 GHz)

Memo

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20

No. FRE	Q READING PEAK	ANT FACTOR	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
[MHz		[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
НО	RIZONTAL								
2 11833. 3 11849. 4 11863. 5 11879. 6 11909. 7 11938. 8 11953.	630 47.30 280 46.90 310 48.60 260 47.00 200 50.10 180 49.00 960 47.70 010 48.40 560 49.50	33.20 33.20 33.20 33.20 33.22 33.28 33.30	10.82 10.83 10.83 10.84 10.85 10.87 10.89 10.89	38.80 38.80 38.81 38.81 38.81 38.82 38.82 38.82	52.52 52.13 53.82 52.23 55.34 54.27 53.05 53.78 54.87	74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0	21.48 21.87 20.18 21.77 18.66 19.73 20.95 20.22 19.13	254 246 284 125 109 128 108 145	0 0 0 139 0 110 0 139 134
VE	RTICAL -								
11 11729 12 11743 13 11759 14 11773 15 11789 16 11803 17 11819 18 11829 19 11833 20 11849 21 11863 22 11879 23 11893 24 11909 25 11923 26 11939 27 11944 28 11953 29 11968 30 11973 31 11989 32 11988 33 12012 34 12088 35 12118 36 12132 37 12148	950 57.90 780 52.60 780 52.60 780 78.0 52.60 650 54.10 650 54.10 690 50.30 690 50.30 480 57.80 310 59.20 360 49.10 300 51.70 140 50.60 180 48.40 060 50.30 940 52.50 110 50.20 950 47.10 130 47.60 670 53.90 560 55.60 210 49.80 240 49.20	33.20 33.20	10.76 10.77 10.77 10.77 10.80 10.80 10.82 10.82 10.83 10.84 10.85 10.86 10.87 10.90 10.91 10.91 10.92 10.93 10.92 10.93	38.78 38.79 38.79 38.79 38.80 38.80 38.80 38.81 38.81 38.81 38.82 38.82 38.82 38.82 38.83 38.83 38.83 38.83 38.83 38.83 38.83 38.83	63.08 57.77 54.98 56.30 62.50 57.02 64.42 55.50 57.02 64.42 55.85 63.67 61.41 55.65 57.87 55.48 52.98 53.67 65.50 57.87 55.48 50.94 50	74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0	10.92 16.23 19.02 18.72 17.7 11.5 16.98 18.48 9.58 19.67 17.06 18.15 20.33 12.59 18.35 16.13 18.42 21.02 17.81 14.71 20.76 13.09 18.91	175 108 124 138 147 126 128 356 133 185 264 108 116 125 135 201 145 201 145 205 201 115 120 142 176 126 185 171	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0









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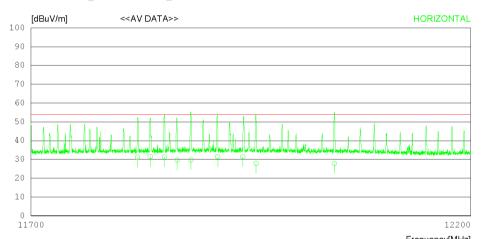
Radiated disturbance at (11.7 ~ 12.2) GHz _Average Measurement data							
Test configuration mode	1	EUT Operation mode	1				
Test voltage (V)	DC 12	Test Frequency (Hz)	-				

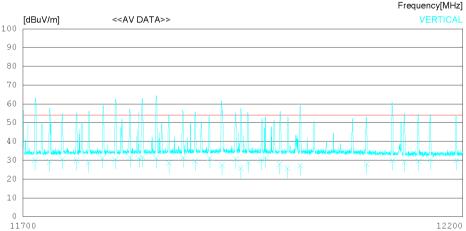
Date 2023-08-17

DTNC2305-03168 DC 12 V 21 'C 64 % R.H. Order No. Power Supply Temp/Humi **Test Condition** X Band (10.525 GHz)

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20





Frequency[MHz]











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Date 2023-08-17

Order No. DTNC2305-03168
Power Supply DC 12 V
Temp/Humi 21 'C 64 % R.H.
Test Condition X Band (10.525 GHz)

#### Memo

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20

No. FREQ READ	NG ANT FACTOR	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
[MHz] [dBu		[dB]	[dB]	[dBuV/m]	[dBuV/m]	] [dB]	[cm]	[DEG]
HORIZONTA								
1 11819.230 26. 2 11833.450 26. 3 11849.450 26. 4 11863.850 26. 5 11979.470 24. 6 11909.760 26. 7 11938.240 26. 8 11953.360 22. 9 12042.480 22.	30 33.20 10 33.20 40 33.20 50 33.20 10 33.22 20 33.28 50 33.30	10.82 10.83 10.84 10.85 10.87 10.89 10.90	38.80 38.80 38.81 38.81 38.82 38.82 38.82 38.82	31.52 31.32 29.63 29.74 31.37 31.55	54.00 54.00 54.00 54.00 54.00 54.00 54.00 54.00	22.78 22.48 22.68 24.37 24.26 22.63 22.45 26.12 26.23	258 249 287 128 102 123 103 148 176	5 5 6 132 4 112 5 133 137
VERTICAL								
10 11713.250 24 11 11729.750 24 12 11743.790 25 13 11759.720 24 14 11772.860 23 15 11788.640 25 16 11803.240 25 17 11819.860 26 18 11829.830 26 19 11833.720 26 20 11849.370 25 21 11863.680 23 22 11879.660 26 23 11893.280 24 24 11909.930 26 25 11923.760 22 26 11939.460 25 27 11944.910 20 28 11953.400 23 29 11968.050 24 30 11973.280 26 31 11989.280 22 32 11998.050 20 33 12012.830 21 34 12088.950 22 35 12118.890 24 36 12132.570 23 37 12148.870 24 38 12162.320 25 39 12192.860 24	10 33.20 33.20 33.20 30 33.20 60 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.20 90 33.30 90 33.30 90 33.30 90 33.30 90 33.30	10.76 10.76 10.77 10.77 10.79 10.80 10.82 10.82 10.82 10.83 10.84 10.85 10.86 10.87 10.90	38.78 38.79 38.79 38.79 38.80 38.80 38.80 38.81 38.81 38.81 38.82 38.82 38.82 38.82 38.82 38.83 38.83 38.83 38.83 38.83 38.83 38.83 38.83	29.27 30.58 29.98 28.80 31.10 30.50 31.52 31.22 31.72 31.02 28.53 31.44 29.65 31.27 27.41 30.65 25.87 30.18 31.48 27.89	54.00 56	23.92 24.73 23.42 24.02 25.20 22.90 22.58 22.78 22.28 22.98 25.47 22.56 24.35 22.73 26.59 23.35 22.73 25.22 23.82 22.52 26.11 28.20 26.81 27.80 28.81 28.81 29.82 20.82 20.82 20.82 20.82 20.83 20.82	172 104 126 134 142 128 353 135 261 104 113 129 138 142 208 169 202 208 116 123 149 172 188 177 144	77 54 44 66 22 33 184 172 32 157 33 215 154 40 184 343 188 48 42 208 132 27 3 3544

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Radiated disturbance at (11.7 ~ 12.2) GHz _Peak Measurement data							
Test configuration mode 1 EUT Operation mode 2							
Test voltage (V)	DC 12	Test Frequency (Hz)	-				

Date 2023-08-17

 Order No.
 DTNC2305-03168

 Power Supply
 DC 12 V

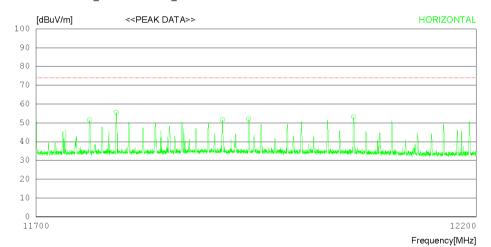
 Temp/Humi
 21 'C 64 % R.H.

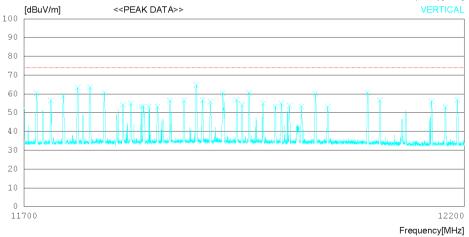
 Test Condition
 K Band (24.150 GHz)

#### Memo

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20





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Date 2023-08-17

 Order No.
 DTNC2305-03168

 Power Supply
 DC 12 V

 Temp/Humi
 21 'C 64 % R.H.

 Test Condition
 K Band (24.150 GHz)

Memo

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20

No.	FREQ :	READING PEAK	ANT FACTO	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m	] [dB]	[cm]	[DEG]
	- HORIZ	ONTAL		-						
2 13 3 13 4 13 5 12	1759.770 1789.550 1909.180 1938.960 2058.690	50.40 3 46.40 3 46.60 3 47.90 3	33.20 33.22 33.28	10.77 10.80 10.87 10.89 10.87	38.79 38.80 38.82 38.82 38.82	51.58 55.60 51.67 51.95 53.25	74.0 74.0 74.0 74.0 74.0	22.42 18.4 22.33 22.05 20.75	127 124 364 167 206	358 358 275 107 127
6 1.7 1.8 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1	- VERTIC 1713.850 1729.780 1743.730 1759.777 1773.610 1789.550 1830.990 1833.380 1849.310 1863.360 1879.300 1893.140 1990.220 1938.860 1953.010 1958.850 1958.980 195	55.20 51.30 53.90 58.10 58.40 55.40 49.70 48.00 48.00 48.00 51.30 51.30 51.30 51.40 51.30 51.40 51	33.20 33.20 33.20 33.20 33.20 33.20 33.20 33.20 33.20 33.20 33.20 33.20 33.20 33.20 33.20 33.20 33.20 33.30	10.76 10.76 10.77 10.79 10.80 10.81 10.82 10.82 10.83 10.84 10.85 10.86 10.86 10.87 10.90 10.91 10.90 10.91 10.92 10.93 10.92 10.93 10.93 10.93 10.93 10.94 10.95	38.78 38.79 38.79 38.79 38.80 38.80 38.80 38.80 38.81 38.81 38.81 38.82 38.82 38.82 38.82 38.82 38.83 38.83 38.83 38.83 38.83 38.83	60.38 56.47 59.08 63.60 60.60 54.21 53.22 53.22 53.22 53.22 53.53 56.64 64.75 56.54 64.75 56.65 60.51 56.83 760.61 56.08 53.07 60.61 56.08 5	74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0	13.62 17.53 14.92 10.72 10.4 13.4 19.79 19.08 20.78 20.58 20.78 20.88 17.47 9.25 17.36 19.25 17.36 19.25 17.36 19.25 17.36 19.25 17.36 19.25 17.36 19.25 17.36 19.25 17.36 19.25 19.12 20.71 20.3 20.61 20.71 20.3 20.61 20.71 20.3 20.61 20.71	148 138 152 109 114 119 126 138 120 126 117 109 206 285 106 178 321 154 205 208 341 106 207 236 208 118 116 105 208 118 116 105 208 124 103 208 234	0 999 0 0 0 2122 0 0 0 40 202 309 0 193 197 0 0 104 179 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0















Radiated disturbance at (11.7 ~ 12.2) GHz _Average Measurement data						
Test configuration mode 1 EUT Operation mode 2						
Test voltage (V) DC 12 Test Frequency (Hz)						

Date 2023-08-17

 Order No.
 DTNC2305-03168

 Power Supply
 DC 12 V

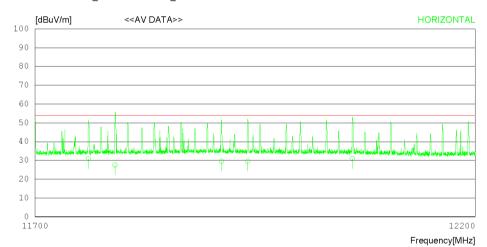
 Temp/Humi
 21 'C 64 % R.H.

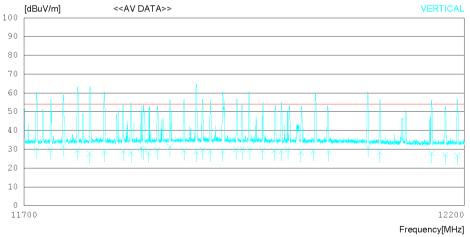
 Test Condition
 K Band (24.150 GHz)

Memo

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20





















Date 2023-08-17

 Order No.
 DTNC2305-03168

 Power Supply
 DC 12 V

 Temp/Humi
 21 'C 64 % R.H.

 Test Condition
 K Band (24.150 GHz)

Memo

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20

	EADING CAV	ANT FACTOR	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
[MHz] [	dBuV]	[dB]	[dB]	[dB] [	dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
HORIZO	NTAL								
1 11759.350 2 11789.120 3 11909.190 4 11938.750 5 12058.120	22.40 24.30 24.20	33.22 33.28	10.80 10.87	38.79 38.80 38.82 38.82 38.82	27.60 29.57 29.55	54.00 54.00 54.00 54.00 54.00	23.02 26.40 24.43 24.45 23.05	126 125 323 164 207	352 353 273 103 123
VERTIC	AL								
6 11713.620 7 11729.120 8 11743.750 9 11759.340 10 11773.240 11 11789.640 12 11810.840 13 11819.840 14 11830.690 15 11833.580 16 11839.380 17 11849.340 18 11863.330 19 11879.380 20 11893.180 21 11909.230 23 11923.060 24 11938.250 25 11945.370 26 11953.830 27 11968.230 28 11881.430 29 11989.540 30 11997.350 31 12011.930 32 12026.260 33 12043.650 34 12088.860 35 12102.660 36 12162.440 37 12178.060 38 12191.780	24.80 26.50 22.40 23.50 22.40 23.80 23.10 25.40 24.60 24.60 23.60 24.50 23.60 24.60 23.60 23.60 23.60 23.60 24.60 23.60 23.70 23.80 23.90 23.80 23	33.20 33.30 33.30	10.76 10.77 10.79 10.80 10.81 10.82 10.82 10.82 10.83 10.84 10.86 10.86 10.87 10.89 10.90 10.90 10.90 10.90 10.91 10.92 10.93 10.92 10.93	38.78 38.79 38.79 38.79 38.80 38.80 38.80 38.80 38.81 38.81 38.81 38.81 38.82 38.82 38.82 38.82 38.82 38.82 38.83 38	29.97 31.68 29.48 27.60 28.70 29.01 28.32 30.62 29.82 29.72 31.33 29.44 28.65 29.75 28.87	54.00 56	23.72 24.03 22.32 24.52 26.40 25.30 24.99 25.68 23.38 24.18 25.78 24.26 25.35 24.25 24.25 24.25 25.13 25.19 24.05 24.32 24.81 25.71 24.91 24.91 24.91 24.91 24.91 25.91 26.91	142 132 156 102 111 112 122 135 124 105 204 281 109 327 159 202 201 343 102 203 232 205 112 113 112 204 121 106 207 203	34 92 36 32 54 218 2 206 303 6 191 193 175 177 34 64 44 155 7 2 6 23 6 4 23 6 4

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Radiated disturbance at (11.7 ~ 12.2) GHz _Peak Measurement data						
Test configuration mode 1 EUT Operation mode 3						
Test voltage (V) DC 12 Test Frequency (Hz)						

Date 2023-08-17

 Order No.
 DTNC2305-03168

 Power Supply
 DC 12 V

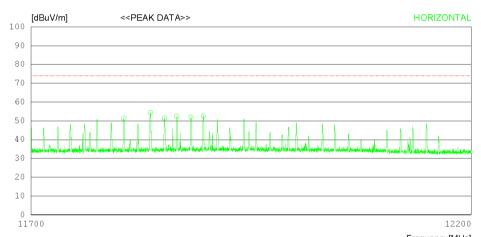
 Temp/Humi
 21 'C 64 % R.H.

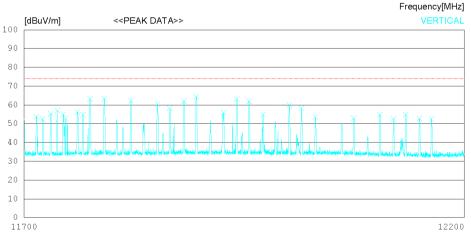
 Test Condition
 Ka Band (34.7 GHz)

#### Memo

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20





Frequency[MHz]

回 数















Date 2023-08-17

 Order No.
 DTNC2305-03168

 Power Supply
 DC 12 V

 Temp/Humi
 21 'C 64 % R.H.

 Test Condition
 Ka Band (34.7 GHz)

Memo

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20

No. FREQ	READING ANT		GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
[MHz]	PEAK FACT [dBuV] [dB		[dB]	[dBuV/m]	[dBuV/m	[dB]	[cm]	[DEG]
HORI	ZONTAL							
2 11833.38 3 11849.31 4 11863.16 5 11879.30	90 46.20 33.20 80 49.10 33.20 10 46.20 33.20 10 46.20 33.20 10 46.80 33.20 10 47.30 33.20	10.82 10.83 10.84 10.85	38.80 38.80 38.81 38.81 38.81 38.81	51.40 54.32 51.42 52.53 52.04 52.55	74.0 74.0 74.0 74.0 74.0 74.0	22.6 19.68 22.58 21.47 21.96 21.45	269 262 265 259 374 139	152 358 283 136 358 358
VERT	ICAL							
8 11720 82 9 11729 78 10 11737 15 11 11743 63 12 11746 52 13 11759 67 14 11765 74 15 11773 71 16 11789 53 17 11819 53 18 11849 31 19 11863 26 20 11879 20 21 11893 14 22 11924 12 23 11938 85 26 11998 93 27 12012 77 28 12028 71 29 12072 54 30 12102 42 31 12118 36	00 48.60 33.20 10 47.20 33.20 10 50.10 33.20 10 51.90 33.20 10 49.80 33.20 10 47.50 33.20 10 49.50 33.20 10 55.90 33.20 10 55.00 33.20 10 55.10 33.20 10 55.10 33.20 10 55.10 33.20 10 55.00 33.20 10 56.80 33.20 10 56.80 33.20 10 56.60 33.30 10 56.60 33.30 10 54.50 33.30 10 49.60 33.30 10 49.70 33.30 10 47.70 33.30	10.77 10.77 10.77 10.77 10.78 10.80 10.88 10.88 10.88 10.89 10.90 10.91 10.93 10.90 10.90 10.90	38.78 38.79 38.79 38.79 38.79 38.79 38.79 38.80 38.81 38.81 38.81 38.82 38.82 38.82 38.83 38.83 38.83 38.83 38.83	53.78 52.37 55.27 57.07 54.98 52.68 54.69 63.10 63.20 60.32 60	74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0	20.22 21.63 18.73 19.02 21.32 17.92 19.31 10.9 11.68 13.68 15.77 11.96 9.75 17.99 10.95 12.02 19.02 19.02 19.02 19.02	120 136 129 154 146 125 196 265 294 129 264 234 263 209 113 205 142 106 129 207 136 207 136 203 174 145 113	10 0 0 0 53 0 0 193 188 0 0 177 208 0 188 193 0 188 193 0 188 193 188 193 188 193 188 193 188 193 188 188 188 188 188 188 188 18















Radiated disturbance at (11.7 ~ 12.2) GHz _Average Measurement data						
Test configuration mode 1 EUT Operation mode 3						
Test voltage (V) DC 12 Test Frequency (Hz)						

Date 2023-08-17

 Order No.
 DTNC2305-03168

 Power Supply
 DC 12 V

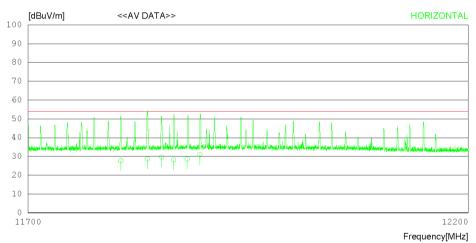
 Temp/Humi
 21 'C 64 % R.H.

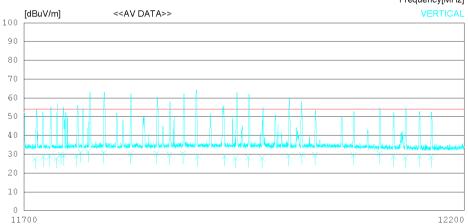
 Test Condition
 Ka Band (34.7 GHz)

Memo

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20





Frequency[MHz]



















Date 2023-08-17

 Order No.
 DTNC2305-03168

 Power Supply
 DC 12 V

 Temp/Humi
 21 'C 64 % R.H.

 Test Condition
 Ka Band (34.7 GHz)

Memo

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

Antenna Factor
1. EMC-233-A\_EM-6969\_156\_2022.12.20
Cable Loss
1. #27\_C1\_Ant to Bottom\_3m\_1-18G\_2022-09-15
2. #28\_C2\_Bottom to Amp(Filter,Receiver)\_3m\_1-18G\_2022-09-15
Pre Amp Gain
1. EMC-233-M\_MLA-0618-B03-34\_2022.12.20

No	. FREQ	READING CAV	ANT FACTOR	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
	HORIZ	CONTAL								
2 3 4 5	11803.57 11833.36 11849.58 11862.93 11878.23 11892.59	0 23.40 0 24.50 0 22.90 0 23.40		10.80 10.82 10.83 10.84 10.85 10.86	38.80 38.81 38.81 38.81	28.62 29.72 28.13 28.64	54.00 54.00 54.00 54.00 54.00 54.00	26.30 25.38 24.28 25.87 25.36 23.05	262 260 264 255 371 126	156 354 282 132 351 351
	VERT	CAL -								
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33	11712.39 11721.59 11728.52 11735.84 11741.34 11744.46 11758.15 11763.18 11771.58 11788.93 11818.93 11818.93 11818.93 11848.19 11862.89 11878.00 11894.75 11925.18 11937.54 11952.12 11967.66 11998.27 12012.97 12012.97 12012.37 12118.18 12132.24 12148.48	0 23.50 0 23.80 0 22.70 0 24.60 0 24.20 0 25.80 0 25.80 0 25.40 0 25.20 0 24.90 0 25.20 0 24.60 0 23.60 0 23.70 0 25.60 0 23.60 0 23.60 0 23.60 0 23.60 0 23.60 0 23.60 0 24.30 0 24.30	33.25 33.28 33.30 33.30 33.30 33.30 33.30 33.30 33.30 33.30	10.75 10.76 10.76 10.76 10.77 10.77 10.77 10.79 10.80 10.85 10.85 10.85 10.85 10.85 10.85 10.90 10.90 10.90 10.90 10.90 10.90 10.90 10.90 10.79	38.79 38.79 38.79 38.79 38.79 38.80 38.80 38.81 38.81 38.82 38.82 38.82 38.82 38.82 38.82 38.83 38.83 38.83	28.67 28.87 27.87 29.78 29.78 29.38 28.98 30.99 31.30 30.62 29.83 30.42 29.83 27.95 27.95 27.95 27.95 29.90 29.90 29.89 29.90 29.89 29.90 29.89 29.90 29.89 29.89 29.89 29.89 28.90	54.00 55	26.43 25.33 25.03 26.13 24.22 24.62 25.02 23.01 22.70 23.40 23.58 24.17 23.66 25.14 24.99 26.05 25.02 24.90 24.11 24.32 24.45 23.59 25.91 25.91	113 132 124 151 149 131 199 269 298 122 261 231 268 214 118 211 146 119 122 221 139 122 223 170 149 116 132 202 362	15 5 9 23 51 43 95 45 198 183 3 2 171 209 186 192 53 186 195 54 125 126 127 128 129 35 129 129 129 129 129 129 129 129 129 129

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### 7.3 Antenna Power Conduction

ANSI C63.4		Antenna power conduction		Result		
present at these termin antenna terminals conr network to connect the decibels in impedance. The measurements we had been successively	als. Antenna of nected directly measuremen matching network re repeated with measured. Porected voltage	minals was to be determined by measurement of the voltage a conducted power measurements was performed with the EUT tly to measuring instrument using a impedance-Matching ent Instrument to the antenna terminals of the EUT. The losses in elever k and cables was added to the measured values in dB $\mu$ V. with the receiver tuned to a frequency until all of frequencies Power in the receive antenna terminals in the ratio of V²/R, ge measured at the antenna terminals, and R is the impedance				
		Frequency range on each side of line	Lim	nit		
Fully configured sample sca	anned ever	30 MHz to 1 000 MHz	2 nW (50 dBμV)			
the following frequency		54 MHz to 300 MHz -26 dBmV 300 MHz to 450 MHz -20 dBmV 450 MHz to 804 MHz -15 dBmV		40 dBµV)		
Measurement Poir	nt	Tuner port				
EUT mode		Test configuration mode	N//	4		
(Refer to clauses 4	4)	EUT Operation mode N/		4		

Measurement Instrument								
Description Model Manufacturer Identifier Cal. Date Cal. Due								
-	-	-	-	-	-			













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Antenna Power Conduction _Measurement data graph							
Test configuration mode	Test configuration mode N/A EUT Operation mode N/A						
Test voltage (V) N/A Test Frequency (Hz) N/A							

N/A

Conducted differential voltage disturbance _Measurement data list								
Test configuration mode		N/A	EU	JT Operation mode		N/A		
Source (MHz)	Frequency (MHz	z) Limit	(dBµV)	Result (dBµV)	Margin (dB)			
Fundamental (≤ 1 000)	-			-	-			
Harmonics (30 ~ 300)	-			-		-		
Harmonics (300 ~ 1 000)	-	5	50	-	-			
Other (30 ~ 1 000)	-			-		-		

















# 8. Revision History

Date	Report No.	Description	Revised By	Reviewed By
Aug. 18. 2023	DREKFCC2308-0116	Initial report	MyungSuk Oh	HyungJun Kim

-End of test report-













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