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 : DRTFCC2512-0100(1)

2. Customer

   • Name (FCC) : Addition LLC

   • Address (FCC) : 90 MADISON ST STE 303, DENVER, Colorado, United States

3. Use of Report : FCC Original Certification

4. Product Name / Model Name : Dedicated charger for ALMA / ACT
   FCC ID : 2BRGIACT

5. FCC Regulation(s) : FCC Part 15 Subpart C

   Test Method used : ANSI C63.30-2021, ANSI C63.10-2020

6. Date of Test : 2025.08.27 ~ 2025.11.12

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

8. Testing Environment: See 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.
This test report is not related to KOLAS accreditation.

Affirmation	Tested by Name : SeokHo Han	Technical Manager Name : JaeJin Lee

2026 . 01 . 21.

Dt&C Co., Ltd.

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

Test Report Version

Test Report No.	Date	Description	Tested by	Reviewed by
DRTFCC2512-0100	Dec. 30. 2025	Initial issue	SeokHo Han	JaeJin Lee
DRTFCC2512-0100(1)	Jan. 21. 2026	Revised the section 1.2	SeokHo Han	JaeJin Lee

CONTENTS

1. General Information

1.1. Description of EUT

FCC Equipment Class	Part 15 Low Power Transmitter Below 1705kHz(DCD)
Product Name	Dedicated charger for ALMA
Model Name	ACT
Firmware Version Identification Number	1.0
EUT Serial Number	No Specified
Frequency	128 kHz
Wireless charging output	Max : 7.5 W
Power Supply	DC 12 V
Antenna type	Coil Antenna

1.2. 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 Part 2.948. **- FCC Designation No.: KR0034** **- FCC Test Firm Registration No.: 704742** **- ISED CAB identifier: KR0034** **- ISED#: 5740A**		
www.dtnc.net		
Telephone	:	+ 82-31-321-2664
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1.3. Testing Environment

Ambient Condition	
▪ Temperature	20 ℃ ~ 24 ℃
▪ Relative Humidity	40 % ~ 55 %

1.4. Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C63.10-2020. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95 % level of confidence.

Parameter	Measurement uncertainty
AC power-line conducted emission	3.4 dB (The confidence level is about 95 %, k = 2)
Radiated emission (1 GHz Below)	5.0 dB (The confidence level is about 95 %, k = 2)

2. Information about test items

2.1. Test mode

This device has been tested together with the client device.
The EUT has 10 loop coil antennas, each of which is capable of charging one client device placed in physical contact with its surface. The system design allows multiple coils to be energized simultaneously, enabling up to 10 client devices to be charged at the same time.
The EUT was configured under the following operating modes and tested. For the charging mode, only the worst-case results are reported.

Test Mode	Frequency(kHz)	Load Condition	Note
Charging Mode	127.9	Single-load	One client device is placed on the EUT.
		Partial-load	Five client devices are charged simultaneously.
		Full-load	All available coils are active with maximum number of client devices.
Idle Mode	128.1	-	Without any client device.

2.2. Support equipment

Support Equipment	Model Name	Manufacturer	Note
Client Device	WS-QFTJ01	WARP Solution Inc.	-
-	-	-	-

Note: The above equipment was supported by manufacturer.

2.3. EMI Suppression Device(s)/Modifications

EMI suppression device(s) added and/or modifications made during testing
→ None

3. Antenna requirements

▣ **According to Part 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.
Therefore this E.U.T Complies with the requirement of §15.203

4. Summary of Test Results

FCC Part Section(s)	Parameter	Limit	Test Condition	Status Note 1
15.215	20 dB Bandwidth	N/A	Radiated	C
15.209	Radiated Emission	Part 15.209 limits (Refer to section 5.2)		C
15.207	AC Conducted Emissions	Part 15.207 limits (Refer to section 5.3)	AC Line Conducted	C
15.203	Antenna Requirements	Part 15.203 (Refer to section 3)	-	C

Note 1: **C**=Comply **NC**=Not Comply **NT**=Not Tested **NA**=Not Applicable
Note 2: For radiated emission tests below 30 MHz were performed on semi-anechoic chamber which is correlated with OATS.

5. Test Result

5.1. 20 dB Bandwidth

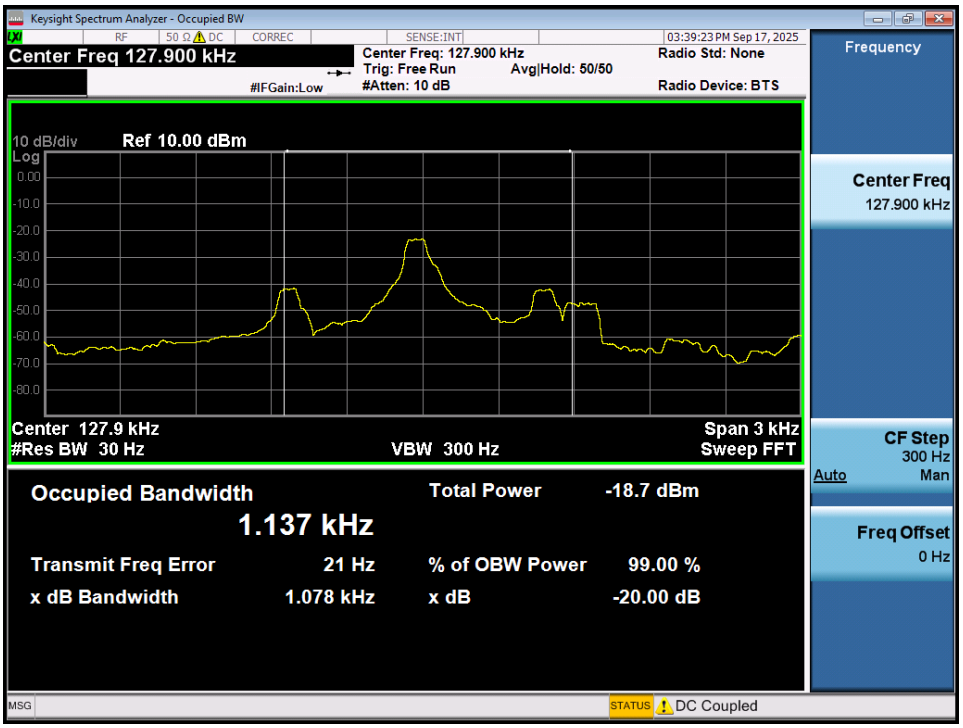
- Procedure:

The 20 dB Bandwidth is measured with a spectrum analyzer connected via a receive antenna placed near the EUT while the EUT is operating in transmission mode.
And spectrum analyzer setting use following test procedure of **ANCSI C63.10-2020 – Section 6.9.2.**

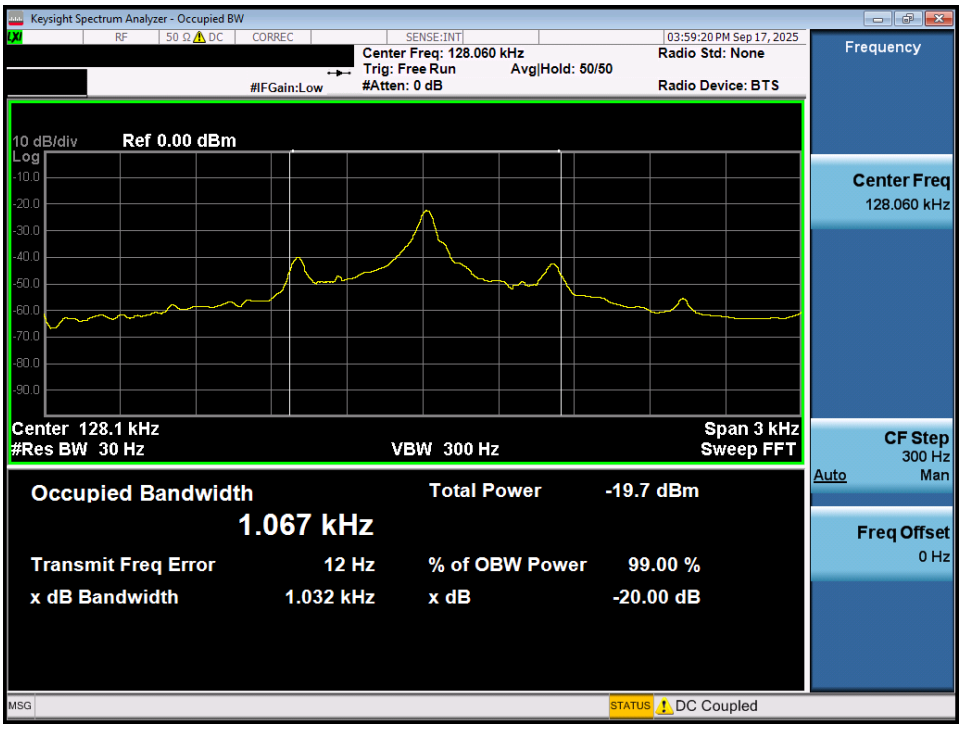
1. Center frequency = EUT channel center frequency
2. Span = 2 ~ 5 times the OBW
3. RBW = 1 % ~ 5 % OBW
4. VBW ≥ 3 x RBW
5. Detector = Peak
6. Trace = Max hold
7. The trace was allowed to stabilize
8. Determine the reference value = Set the spectrum analyzer marker to the highest level of the displayed trace
9. Using the marker-delta function of the instrument, determine the “−xx dB down amplitude” using [(reference value) − xx].
10. Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.

- Measurement Data: Comply

Test Mode	Tested Frequency(kHz)	20dB Bandwidth(kHz)
Charging	127.9	1.078



Test Mode	Tested Frequency(kHz)	20dB Bandwidth(kHz)
Idle	128.1	1.032



5.2. Radiated Emissions

- Limit: FCC Part 15.209(a): General requirement

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (Meters)
0.009 ~ 0.490	2 400/F (kHz)	300
0.490 ~ 1.705	24 000/F (kHz)	30
1.705 ~ 30	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 - 72 MHz, 76 - 88 MHz, 174 - 216 MHz or 470 - 806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

- Procedure:

ANSI C63.30-2021 – Section 9.1.2

For frequencies from 9 kHz to 30 MHz, the radiated magnetic field strength was measured using a small loop antenna method. Measurements were performed to determine the maximum radiated magnetic field strength of the EUT in all three orthogonal orientations (coaxial, vertical coplanar, and horizontal coplanar), over all azimuth angles of the EUT, at the applicable limit distance. The center of the loop antenna was fixed at 1.3 m above the ground during all measurements.

For frequencies from 30 MHz to 1 GHz, the radiated electric field strength was measured to determine the maximum emissions from the EUT. Measurements were performed in both horizontal and vertical polarizations over all azimuth angles of the EUT at the applicable limit distance. The receiving antenna height was varied from 1 m to 4 m to maximize the measured field strength.

- Measurement Instrument Setting for Radiated Emission Measurements.

RBW = As specified in table, VBW ≥ 3 x RBW, Sweep = Auto, Detector = Peak[Note1] or Quasi Peak,
Trace mode = Max Hold until the trace stabilize

Frequency	RBW
9 kHz - 150 kHz	200 Hz - 300 Hz
0.15 MHz - 30 MHz	9 kHz -10 kHz
30 MHz - 1 000 MHz	100 kHz - 120 kHz

Note1: Measurements were performed using the peak detector.
The data measured using the peak detector of a spectrum analyzer will represent the worst-case results.

- Measurement Data: Comply (refer to the next page)

Measurement Distance : **3 Meters**

- Measurement Data: Charging Mode

Single-load

Tested Frequency(kHz)	Freq. (MHz)	Detector	ANT pol	Reading (dBuV)	TF (dB/m)	DCF (dB)	Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dB)
127.9	*0.128	PK	P	79.4	11.5	80	10.90	25.5	14.6
	0.645	PK	P	40.0	11.4	40	11.40	31.4	20.0
	1.144	PK	P	33.4	11.4	40	4.80	26.4	21.6
	38.083	QP	V	42.4	-9.1	0	33.30	40.0	6.7
	159.010	QP	H	41.0	-6.4	0	34.60	43.5	8.9
	241.137	QP	H	35.9	-6.6	0	29.30	46.0	16.7

Partial-load

Tested Frequency(kHz)	Freq. (MHz)	Detector	ANT pol	Reading (dBuV)	TF (dB/m)	DCF (dB)	Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dB)
127.9	*0.128	PK	P	78.2	11.5	80	9.70	25.5	15.8
	0.257	PK	P	45.6	11.4	80	-23.00	19.4	42.4
	0.640	PK	P	40.8	11.4	40	12.20	31.5	19.3
	38.293	QP	V	35.6	-9.1	0	26.50	40.0	13.5
	157.631	QP	V	36.1	-6.5	0	29.60	43.5	13.9
	159.696	QP	H	36.1	-6.5	0	29.60	43.5	13.9

Full-load

Tested Frequency(kHz)	Freq. (MHz)	Detector	ANT pol	Reading (dBuV)	TF (dB/m)	DCF (dB)	Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dB)
127.9	*0.128	PK	P	72.6	11.5	80	4.10	25.5	21.4
	0.645	PK	P	41.8	11.4	40	13.20	31.4	18.2
	1.013	PK	P	37.2	11.4	40	8.60	27.5	18.9
	141.217	QP	H	32.4	-6.8	0	25.60	43.5	17.9
	160.300	QP	H	43.9	-6.5	0	37.40	43.5	6.1
	160.723	QP	V	39.1	-6.5	0	32.60	43.5	10.9

- Measurement Data: Idle Mode

Tested Frequency(kHz)	Freq. (MHz)	Detector	ANT pol	Reading (dBuV)	TF (dB/m)	DCF (dB)	Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dB)
128.06	*0.128	PK	P	75.3	11.5	80	6.80	25.5	18.7
	0.645	PK	P	39.1	11.4	40	10.50	31.4	20.9
	0.902	PK	P	34.9	11.4	40	6.30	28.5	22.2
	36.467	PK	V	42.8	-9.3	0	33.50	40.0	6.5
	165.154	PK	H	41.6	-6.6	0	35.00	43.5	8.5
	927.535	PK	V	27.0	8.6	0	35.60	46.0	10.4

Note 1. * = Fundamental emission, # = Noise Floor

Note 2. Loop antenna orientation (Below 30 MHz)

"P"= Parallel, "V"= perpendicular, "G"= ground-parallel

Bilog antenna polarization (Above 30 MHz)

"H"= Horizontal, "V"= Vertical

Note 3. If PK results were meet Quasi-peak limit, Quasi-peak measurements were omitted.

Note 4. No other spurious and harmonic emissions were reported greater than listed emissions above table.

Note 5. Sample calculation

Margin = Limit – Field Strength

Field Strength = Reading + TF – Distance factor

T.F = AF + CL – AG

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

DCF= Distance Correction Factor

Distance Correction factor

At frequencies below 30 MHz = 40 log(tested distance / specified distance)

At frequencies at or above 30 MHz = 20 log(tested distance / specified distance)

5.3. AC Power-Line Conducted Emissions

- Test Requirements and limit, Part 15.207

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 uH/50 ohm line impedance stabilization network (LISN).

Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5.0	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

- Test setup

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

- Procedure:

Conducted emissions from the EUT were measured according to the ANSI C63.30-2021.

1. The test procedure is performed in a shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) × 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.

- Test Results

Refer to the next page. (The worst case data was reported.)

AC Power-Line Conducted Emissions (Graph)

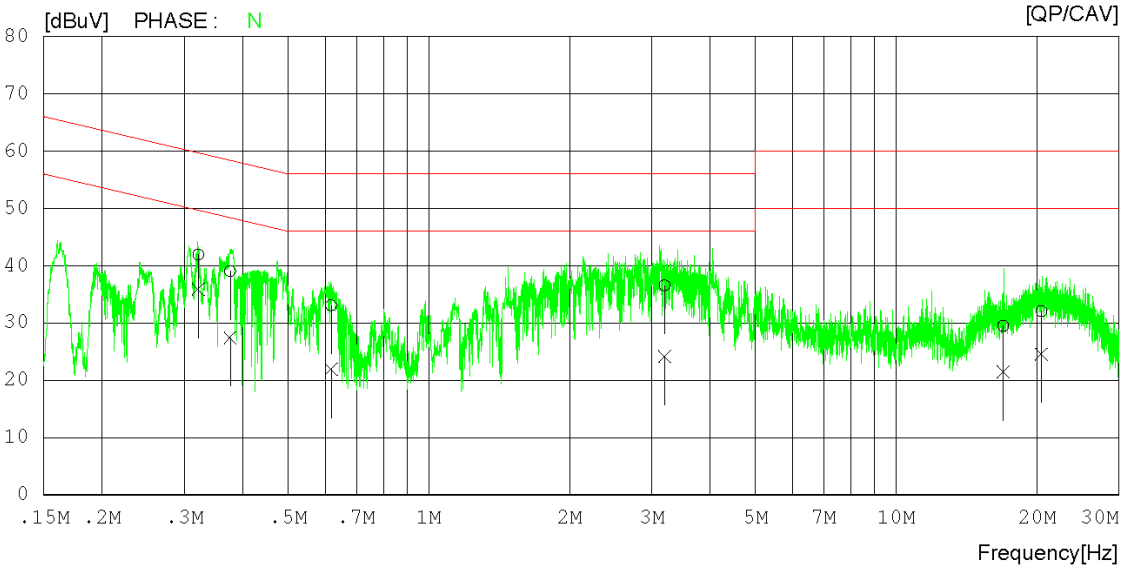
Date 2025-11-12

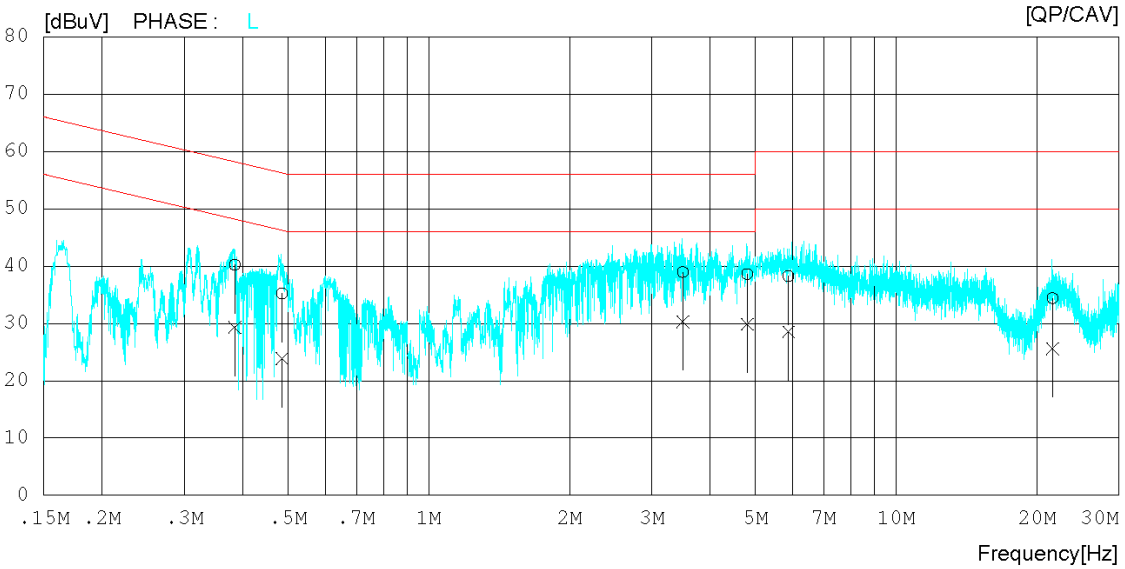
Model. No	ACT		
Power Supply	120 V, 60 Hz		
Temp/Humi	23 'C / 55 %		
Test Condition	Operating	Operator	S.H.HAN

Memo

LIMIT : FCC Part15.207 AV
FCC Part15.207 QP

Lisn Factor
1. NNLK8121_06182_3Ph_N_20250710
2. NNLK8121_06182_3Ph_L1_20250710
Cable Loss
1. TC_9kHz-30MHz_2025.01.08
Pulse Lmitter
1. EMC-668_ESHZ-Z2_103298_2025.07.10





AC Power-Line Conducted Emissions (List)

Date 2025-11-12

Model. No	ACT		
Power Supply	120 V, 60 Hz		
Temp/Humi	23 'C / 55 %		
Test Condition	Operating	Operator	S.H.HAN

Memo

LIMIT : FCC Part15.207 AV
FCC Part15.207 QP

Lisn Factor
1. NNLK8121_06182_3Ph_N_20250710
2. NNLK8121_06182_3Ph_L1_20250710
Cable Loss
1. TC_9kHz-30MHz_2025.01.08
Pulse Lmitter
1. EMC-668_ESHZ-Z2_103298_2025.07.10

NO	FREQ	READING QP	READING CAV	C.FACTOR	RESULT QP	RESULT CAV	LIMIT QP	LIMIT CAV	MARGIN QP	MARGIN CAV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.32106	31.94	25.91	9.95	41.89	35.86	59.68	49.68	17.79	13.82	N
2	0.37571	29.07	17.52	9.94	39.01	27.46	58.37	48.37	19.36	20.91	N
3	0.61850	23.07	11.93	9.95	33.02	21.88	56.00	46.00	22.98	24.12	N
4	3.19846	26.52	14.13	10.01	36.53	24.14	56.00	46.00	19.47	21.86	N
5	16.96727	19.06	11.03	10.40	29.46	21.43	60.00	50.00	30.54	28.57	N
6	20.49385	21.55	14.10	10.46	32.01	24.56	60.00	50.00	27.99	25.44	N
7	0.38450	30.22	19.36	9.94	40.16	29.30	58.18	48.18	18.02	18.88	L
8	0.48550	25.26	13.92	9.93	35.19	23.85	56.24	46.24	21.05	22.39	L
9	3.49655	28.94	20.27	10.02	38.96	30.29	56.00	46.00	17.04	15.71	L
10	4.80489	28.54	19.80	10.04	38.58	29.84	56.00	46.00	17.42	16.16	L
11	5.88635	28.18	18.42	10.05	38.23	28.47	60.00	50.00	21.77	21.53	L
12	21.62920	23.93	15.14	10.46	34.39	25.60	60.00	50.00	25.61	24.40	L

APPENDIX I

TEST EQUIPMENT FOR TESTS

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	25/05/26	26/05/26	MY46471622
Multimeter	FLUKE	17B+	24/11/27	25/11/27	36390701WS
Signal Generator	Rohde Schwarz	SMBV100A	24/12/10	25/12/10	255571
Loop Antenna	ETS-Lindgren	6502	24/04/23	26/04/23	203480
Hybrid Antenna	Schwarzbeck	VULB 9160	24/12/13	25/12/13	3362
PreAmplifier	H.P	8447D	24/12/11	25/12/11	2944A07774
Thermohygrometer	BODYCOM	BJ5478	24/12/17	25/12/17	090205-4
EMI Test Receiver	ROHDE&SCHWARZ	ESR7	25/07/09	26/07/09	102924
PULSE LIMITER	ROHDE&SCHWARZ	ESH3-Z2	25/07/10	26/07/10	103298
LISN	SCHWARZBECK	NNLK 8121	25/07/10	26/07/10	06182
Thermo HygroMeter	CAS	TE-303N	25/02/13	26/02/13	220502531
Cable	HUBER+SUHNER	SUCOFLEX100	25/01/02	26/01/02	M-01
Cable	HUBER+SUHNER	SUCOFLEX100	25/01/02	26/01/02	M-02
Cable	JUNFLON	MWX241/B	25/01/02	26/01/02	M-03
Cable	JUNFLON	J12J101757-00	25/01/02	26/01/02	M-07
Cable	HUBER+SUHNER	SUCOFLEX106	25/01/02	26/01/02	M-09
Cable	Dt&C	Cable	25/01/02	26/01/02	RFC-69
Test Software (AC Line Conducted)	tsj	EMI Measurement	NA	NA	Version 2.00.0190
Test Software (Radiated)	tsj	EMI Measurement	NA	NA	Version 2.00.0185
3m Semi Anechoic Chamber	SYC	3m-SAC	25/06/13(NSA) 25/06/19(VSWR)	26/06/13(NSA) 26/06/19(VSWR)	3m-SAC-1

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.

- End of test report -