Test Report acc. to FCC Title 47 CFR Part 15
relating to
OMNI Life Science GmbH & Co. KG
CASY TTT

Title 47 - Telecommunication
Part 15 - Radio Frequency Devices
Subpart B – Unintentional Radiators
Measurement Procedure:
ANSI C63.4-2014

TÜV NORD Hochfrequenztechnik GmbH & Co. KG
LESKANPARK, Gebäude 10, Waltherstr. 49-51, 51069 Köln, Germany
Tel.: +49 221 8888950

MANUFACTURER	
Manufacturer name	**OMNI Life Science GmbH Co. KG**
Manufacturer's grantee code	**2AVNF**
Manufacturer's address	Karl-Ferdinand-Braun-Straße 2 D-28359 Bremen Germany
Phone	+49 421 276 169 17
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Email	JF@ols-bio.de

TESTING LABORATORY	
Test engineer	Mr. Ralf Trepper
Testing laboratory name	**TÜV NORD Hochfrequenztechnik GmbH & Co. KG**
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RELEVANT STANDARD	
Title	**47 - Telecommunication**
Part	**15 - Radio Frequency Devices**
Subpart	**Subpart B – Unintentional Radiators**
Measurement procedure	ANSI C63.4-2014

EQUIPMENT UNDER TEST (EUT)	
Equipment category	Class A digital device
Trade name	CASY
Type designation	CASY TTT
Serial no.	TTT2RA2702
Variants	---

1. Test results

Clause	Requirements headline	Test result		
8.1	Conducted limits	**Pass**	~~Fail~~	~~N.t.~~ *
8.2	Radiated emission limits	**Pass**	~~Fail~~	~~N.t.~~ *

* Not tested

For the decision rules on conformity statements the requirements of the standard applies. If necessary the IEC Guideline 115 is taken into account.

The equipment passed all the conducted tests	**Yes**	~~No~~

Signature	Digital unterschrieben von Ralf Trepper DN: cn=Ralf Trepper, o=TÜV NORD Hochfrequenztechnik GmbH & Co. KG, ou=Labor, email=rtrepper@tuev-nord.de, c=DE Datum: 2020.02.19 10:07:43 +01'00'	Digital unterschrieben von Abdelouahid Ftouhi DN: cn=Abdelouahid Ftouhi, o=TUEV NORD Hochfrequenztechnik, ou, email=aftouhi@tuev-nord.de, c=DE Datum: 2020.02.19 10:06:36 +01'00'
Name	**Mr. Ralf Trepper**	**Mr. Abdelouahid Ftouhi**
Designation	**RF Test engineer**	**Laboratory-Manager**
Date of issue	**2020-01-29**	**2020-01-29**

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TÜV NORD Hochfrequenztechnik GmbH & Co. KG
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2. Introduction

This test report **is not an expert opinion** and consists of:

- Test result summary
- List of contents
- Introduction and further information
- Performance assessment
- Detailed test information

All pages have been numbered consecutively and bear the TÜV NORD Hochfrequenztechnik GmbH & Co. KG logo, the test report number, the date, the test specification in its current version as well as the type designation of the EUT. The total number of pages in this report is **25**.

The tests were carried out at:

- TÜV NORD Hochfrequenztechnik GmbH & Co. KG, D-51069 Köln

in a representative assembly and in accordance with the test methods and/or requirements stated in:

FCC Title 47 CFR Part 15 Subpart B & ANSI C63.4-2014

The sample of the product was received on:

- 2020-01-14

The tests were carried out in the following period of time:

- 2020-01-15

3. Testing laboratory

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LESKANPARK, Gebäude 10
Waltherstr. 49-51
51069 Köln
Germany

Phone: +49 221 8888950

- FCC Registration Number: **763407**

Accredited by:

DAkkS Deutsche Akkreditierungsstelle GmbH
DAkkS accreditation number: D-PL-12053-01-00

4. Applicant

Company name	: OMNI Life Science GmbH & Co.KG
Address	: Karl-Ferdinand-Braun-Straße 2
	D-28359 Bremen
Country	: Germany
Telephone	: 49 421 276 169 17
Fax	: 49 421 276 169 19
Email	: JF@ols-bio.de
Date of order	: 2019-11-29
References	: Dr. Josef Freund

5. Product and product documentation

Samples of the following apparatus were submitted for testing:

Manufacturer	: OMNI Life Science GmbH & Co.KG
Trademark	: CASY
Type designation	: **CASY TTT**
Hardware version	: CASY 2R
Serial number	: TTT2RA2702
Software release	: 2.10
Type of equipment	: Class A digital device
	CASY Cell Counter and Analyzer
EUT power used	: 115 VAC / 60Hz / 60 VA

For issuing this report the following product documentation was used:

Title	Description	Version
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Description	Date	Identifications
External photographs of the **E**quipment **U**nder **T**est (EUT)	2020-01-29	Annex no. 1
Internal photographs of the **E**quipment **U**nder **T**est (EUT)	2020-01-29	Annex no. 2
Channel occupancy / bandwidth	---	Annex no. 3
Label sample	2020-01-29	Annex no. 4
Functional description / User manual	2020-01-29	Annex no. 5
Test setup photos	2020-01-29	Annex no. 6
Block diagram	2020-01-29	Annex no. 7
Operational description	2020-01-29	Annex no. 8
Schematics	2020-01-29	Annex no. 9
Parts list	2020-01-29	Annex no. 10

6. Conclusions, observations and comments

The test report will be filed at TÜV NORD Hochfrequenztechnik GmbH & Co. KG for a period of 10 years following the issue of this report. It may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of TÜV NORD Hochfrequenztechnik GmbH & Co. KG.

The results of the tests as stated in this report are exclusively applicable to the EUT as identified in this report. TÜV NORD Hochfrequenztechnik GmbH & Co. KG cannot be held liable for properties of the EUT that have not been observed during these tests.

TÜV NORD Hochfrequenztechnik GmbH & Co. KG assumes the sample to comply with the requirements of FCC Title 47 CFR Part 15 for the respective test sector, if the test results turn out positive.

Comments: ---

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7. Operational description

7.1 EUT details

CASY quantifies cells and particles passing a measuring pore exposed to a low voltage electrical field. Based on a cells size and conductivity, a resistance signal is generated and recorded. Living cells generate high resistance signals due to their intact membrane structure. Dying or dead cells cause much lower resistance due to their increased membrane permeability: they are measured by the size of their cell nuclei.

7.2 EUT configuration

The EUT was directly connected to the mains network. It has been tested with the activated EUT in continuous measuring mode.

7.3 EUT measurement description

Radiated measurements

The EUT was tested in a typical fashion. During preliminary emission tests the EUT was operated in the continuous measuring mode for worst case emission mode investigation. Therefore, the final qualification testing was completed with the EUT operated in continuous measuring mode. All tests were performed with the EUT's typical voltage: 115 V AC

In order to establish the maximum radiation, firstly, there have been viewed all orthogonal adjustments of the test samples, secondly the test ample have been rotated at all adjustments around the own axis between 0° and 360°, and thirdly, the antenna polarization between horizontal and vertical had been varied.

Conducted measurements

The EUT was directly connected to the artificial mains network. It has been tested with the activated EUT in continuous measuring mode.

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8. Compliance assessment

8.1 Conducted limits

8.1.1 Regulation

(a) Except for Class A digital devices, for equipment 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 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Conducted Limits		
Frequency of Emission	**Quasi-Peak (QP)**	**Average (AV)**
MHz	**dBµV**	**dBµV**
0.15 - 0.5	66 to 56*	56 to 46*
0.5 - 5	56	46
5 -30	60	50
*Decreases with the logarithm of the frequency		

(b) For a Class A digital device 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 µH/50 ohms LISN. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	**Conducted limit (dBµV)**	
	Quasi-peak	**Average**
0.15 - 0.5	79	66
0.5 - 30	73	60

(c) The limits shown in paragraphs (a) and (b) of this section shall not apply to carrier current systems operating as unintentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

(1) For carrier current systems containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions

(2) For all other carrier current systems: 1000 µV within the frequency band 535-1705 kHz, as measured using a 50 µH/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.109(e)

(d) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provision for, the use of battery

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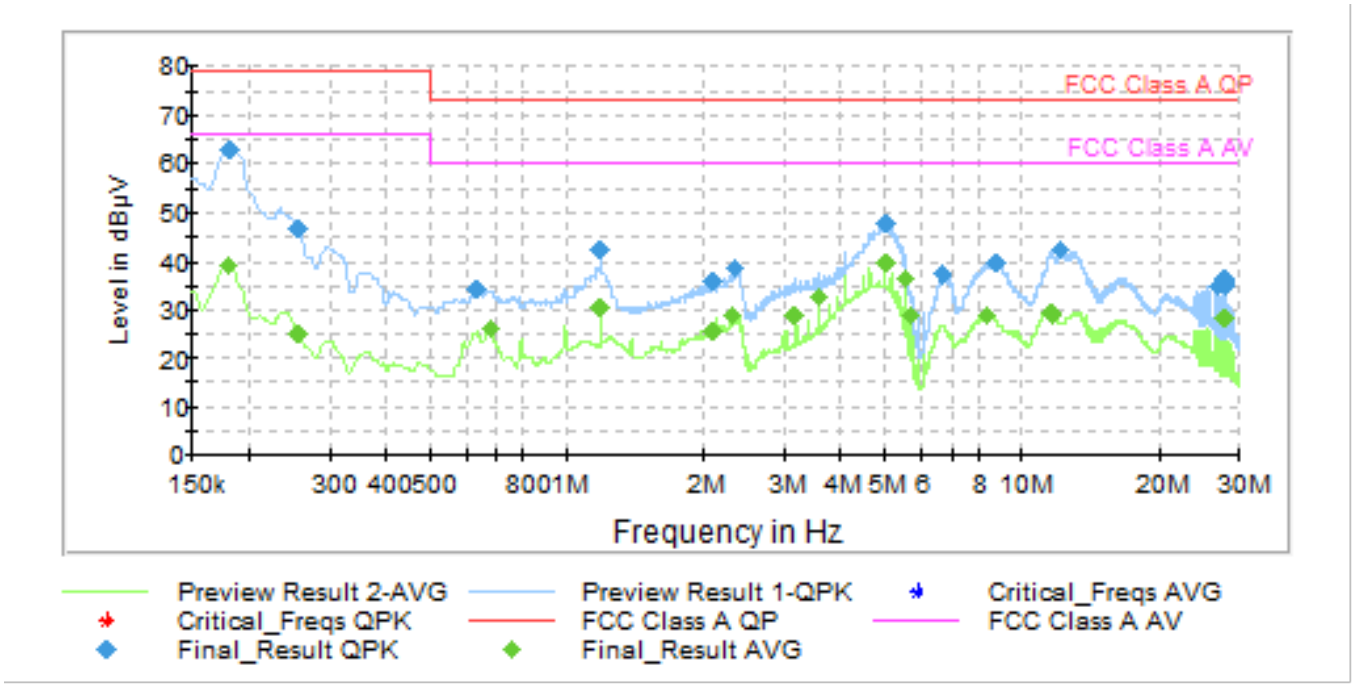
chargers which permit operating while charging, AC adaptors or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

8.1.2 Test procedure

The EUT and the additional equipment (if required) are connected to the main power through a line impedance stabilization network (LISN). The LISN must be appropriate to ANSI C63.4-2014. Additional equipment must also be connected to a second LISN with the same specifications as described above (if required).

8.1.3.1 Result

- **AC Main power:**



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EUT active, direct connected to the artificial mains network, EUT in continuous measuring mode

Fequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.179250	---	38.90	66.00	27.10	1000.0	9.000	L1	GND	20.1
0.181500	63.03	---	79.00	15.97	1000.0	9.000	L1	GND	20.1
0.255750	46.95	---	79.00	32.05	1000.0	9.000	L1	GND	20.2
0.255750	---	25.21	66.00	40.79	1000.0	9.000	L1	GND	20.2
0.629250	34.46	---	73.00	38.54	1000.0	9.000	L1	GND	20.2
0.676500	---	26.34	60.00	33.66	1000.0	9.000	N	GND	20.1
1.182750	---	30.12	60.00	29.88	1000.0	9.000	N	GND	20.1
1.182750	42.27	---	73.00	30.73	1000.0	9.000	L1	GND	20.2
2.087250	---	25.58	60.00	34.42	1000.0	9.000	L1	GND	20.2
2.087250	35.86	---	73.00	37.14	1000.0	9.000	L1	GND	20.2
2.307750	---	28.89	60.00	31.11	1000.0	9.000	L1	GND	20.3
2.348250	38.46	---	73.00	34.54	1000.0	9.000	L1	GND	20.3
3.156000	---	28.86	60.00	31.14	1000.0	9.000	L1	GND	20.3
3.567750	---	32.70	60.00	27.30	1000.0	9.000	N	GND	20.2
4.992000	47.57	---	73.00	25.43	1000.0	9.000	L1	GND	20.4
4.994250	---	39.75	60.00	20.25	1000.0	9.000	L1	GND	20.4
5.529750	---	36.43	60.00	23.57	1000.0	9.000	N	GND	20.3
5.707500	---	28.67	60.00	31.33	1000.0	9.000	N	GND	20.3
6.717750	37.33	---	73.00	35.67	1000.0	9.000	L1	GND	20.5
8.391750	---	28.58	60.00	31.42	1000.0	9.000	L1	GND	20.5
8.774250	39.43	---	73.00	33.57	1000.0	9.000	L1	GND	20.5
11.613750	---	29.24	60.00	30.76	1000.0	9.000	L1	GND	20.6
12.160500	42.30	---	73.00	30.70	1000.0	9.000	L1	GND	20.7
26.898000	34.88	---	73.00	38.12	1000.0	9.000	N	GND	21.2
27.809250	---	28.23	60.00	31.77	1000.0	9.000	N	GND	21.2
27.809250	36.31	---	73.00	36.69	1000.0	9.000	N	GND	21.2
28.056750	34.95	---	73.00	38.05	1000.0	9.000	N	GND	21.2

Test Cables used	K79
Test equipment used	60, 272, 551, 606a, 606b, 606c, 665

The equipment passed the conducted tests	**Yes**	~~No~~	~~N.t.~~ *

Test setup photos / test results are attached	**Yes**	~~No~~	Annexe no. 6

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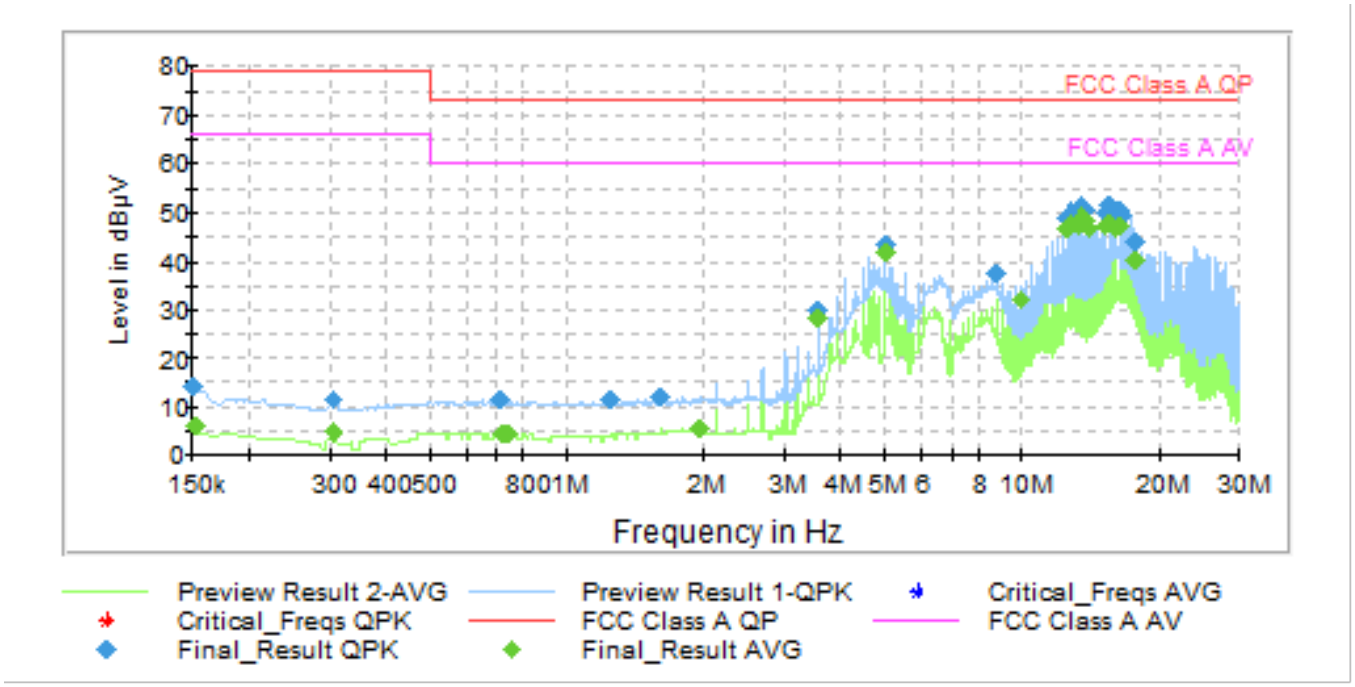
8.1.3.2 Result

- **USB Port:**



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EUT active, USB- Port connected via Laptop to the artificial mains network, EUT in continuous measuring mode

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.150000	14.51	---	79.00	64.49	1000.0	9.000	L1	GND	20.1
0.152250	---	6.10	66.00	59.90	1000.0	9.000	L1	GND	20.1
0.307500	---	4.62	66.00	61.38	1000.0	9.000	L1	GND	20.2
0.307500	11.37	---	79.00	67.63	1000.0	9.000	L1	GND	20.2
0.712500	11.57	---	73.00	61.43	1000.0	9.000	L1	GND	20.2
0.723750	---	4.46	60.00	55.54	1000.0	9.000	L1	GND	20.2
0.746250	---	4.48	60.00	55.52	1000.0	9.000	L1	GND	20.2
1.248000	11.33	---	73.00	61.67	1000.0	9.000	N	GND	20.1
1.603500	12.32	---	73.00	60.68	1000.0	9.000	L1	GND	20.2
1.961250	---	5.58	60.00	54.42	1000.0	9.000	L1	GND	20.2
3.563250	30.00	---	73.00	43.00	1000.0	9.000	N	GND	20.2
3.563250	---	28.33	60.00	31.67	1000.0	9.000	N	GND	20.2
4.989750	---	41.68	60.00	18.32	1000.0	9.000	N	GND	20.2
4.989750	43.15	---	73.00	29.85	1000.0	9.000	N	GND	20.2
8.772000	37.76	---	73.00	35.24	1000.0	9.000	N	GND	20.4
9.930750	---	32.09	60.00	27.91	1000.0	9.000	N	GND	20.4
12.579000	49.02	---	73.00	23.98	1000.0	9.000	N	GND	20.6
12.579000	---	46.53	60.00	13.47	1000.0	9.000	N	GND	20.6
12.828750	50.17	---	73.00	22.83	1000.0	9.000	N	GND	20.6
12.828750	---	47.79	60.00	12.21	1000.0	9.000	N	GND	20.6
13.242750	49.93	---	73.00	23.07	1000.0	9.000	N	GND	20.6
13.242750	---	47.32	60.00	12.68	1000.0	9.000	N	GND	20.6
13.490250	---	49.15	60.00	10.85	1000.0	9.000	N	GND	20.6
13.490250	51.54	---	73.00	21.46	1000.0	9.000	N	GND	20.6
13.737750	---	48.31	60.00	11.69	1000.0	9.000	N	GND	20.6
13.737750	50.54	---	73.00	22.46	1000.0	9.000	N	GND	20.6
13.987500	---	46.30	60.00	13.70	1000.0	9.000	N	GND	20.6
15.227250	---	47.22	60.00	12.78	1000.0	9.000	N	GND	20.6
15.229500	49.99	---	73.00	23.01	1000.0	9.000	N	GND	20.6
15.477000	51.44	---	73.00	21.56	1000.0	9.000	N	GND	20.6
15.477000	---	47.93	60.00	12.07	1000.0	9.000	N	GND	20.6
16.138500	49.88	---	73.00	23.12	1000.0	9.000	N	GND	20.6
16.138500	---	46.46	60.00	13.54	1000.0	9.000	N	GND	20.6
16.388250	---	47.08	60.00	12.92	1000.0	9.000	N	GND	20.6
16.388250	50.47	---	73.00	22.53	1000.0	9.000	N	GND	20.6
16.635750	49.34	---	73.00	23.66	1000.0	9.000	N	GND	20.7
17.794500	---	40.20	60.00	19.80	1000.0	9.000	N	GND	20.7
17.794500	43.90	---	73.00	29.10	1000.0	9.000	N	GND	20.7

Test Cables used	K79
Test equipment used	60, 272, 551, 606a, 606b, 606c, 665

The equipment passed the conducted tests	**Yes**	~~No~~	~~N.t.~~ [1]

Test setup photos / test results are attached	**Yes**	~~No~~	Annexe no. 6

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8.2 Radiated emission limits

8.2.1 Regulation

(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

radiated emission from unintentional radiator- limits @ 3 m**		
Frequency of emission(MHz)	**Field strength**	
MHz	**µV / m**	**dBµV / m**
30 - 88	100	40.0
88 - 216	150	43.5
216 -960	200	46.0
Above 960	500	54.0
** Except for Class A digital device		

(b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

radiated emission from unintentional radiator- limits @ 10 m**		
Frequency of emission(MHz)	**Field strength**	
MHz	**µV/m**	**dBµV/m**
30 - 88	90	39.1
88 - 216	150	43.5
216 -960	210	46.4
Above 960	300	49.5
** For Class A digital device		

(c) In the emission tables above, the tighter limit applies at the band edges. Sections 15.33 and 15.35 which specify the frequency range over which radiated emissions are to be measured and the detector functions and other measurement standards apply.

(d) For CB receivers, the field strength of radiated emissions within the frequency range of 25-30 MHz shall not exceed 40 microvolts/meter at a distance of 3 meters. The field strength of radiated emissions above 30 MHz from such devices shall comply with the limits in paragraph (a) of this section.

(e) Carrier current systems used as unintentional radiators or other unintentional radiators that are designed to conduct their radio frequency emissions via connecting wires or cables and that operate in the frequency range of 9 kHz to 30 MHz, including devices that deliver the radio frequency energy to transducers, such as ultrasonic devices not covered under part 18 of this chapter, shall comply with the radiated emission limits for intentional radiators provided in §15.209 for the frequency range of 9 kHz to 30 MHz. As an alternative, carrier current systems used as unintentional radiators and operating in the frequency range of 525 kHz to 1705 kHz may comply with the radiated emission limits provided in §15.221(a). At frequencies above 30 MHz, the limits in paragraph (a), (b), or (g) of this section, as appropriate, apply.

(f) For a receiver which employs terminals for the connection of an external receiving antenna, the receiver shall be tested to demonstrate compliance with the provisions of this section with an antenna connected to the antenna terminals unless the antenna conducted power is measured as specified in §15.111(a). If a permanently attached receiving antenna is used, the receiver shall be tested to demonstrate compliance with the provisions of this section.

(g) As an alternative to the radiated emission limits shown in paragraphs (a) and (b) of this section, digital devices may be shown to comply with the standards contained in Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, "Information Technology Equipment—Radio Disturbance Characteristics—Limits and Methods of Measurement" (incorporated by reference, see §15.38). In addition:

(1) The test procedure and other requirements specified in this part shall continue to apply to digital devices.

(2) If, in accordance with §15.33 of this part, measurements must be performed above 1000 MHz, compliance above 1000 MHz shall be demonstrated with the emission limit in paragraph (a) or (b) of this section, as appropriate. Measurements above 1000 MHz may be performed at the distance specified in the CISPR 22 publications for measurements below 1000 MHz provided the limits in paragraphs (a) and (b) of this section are extrapolated to the new measurement distance using an inverse linear distance extrapolation factor (20 dB/decade), e.g., the radiated limit above 1000 MHz for a Class B digital device is 150 uV/m, as measured at a distance of 10 meters.

(3) The measurement distances shown in CISPR Pub. 22, including measurements made in accordance with this paragraph above 1000 MHz, are considered, for the purpose of §15.31(f)(4) of this part, to be the measurement distances specified in this part.

(h) Radar detectors shall comply with the emission limits in paragraph (a) of this section over the frequency range of 11.7-12.2 GHz.

8.2.2 Test procedure

The EUT and this peripheral (when additional equipment exists) are placed on a turn table which is 0.8 m above the ground. The turn table would be allowed to rotate 360° to determine the position of the maximum emission level. The test distance between the EUT and the receiving antenna are 3m. To find the maximum emission, the polarization of the receiving antenna is changed in horizontal and vertical polarization; the position of the EUT was changed in different orthogonal determinations.

ANSI C63.4-2014 Section 8 "Radiated Emissions Testing"

Measurement procedures for electric field radiated emissions from 9kHz - 1 GHz & 1 GHz - 40 GHz are covered in Clause 8 of ANSI C63.4-2014. The ANSI C63.4-2014 measurement procedure consists of both an exploratory test and a final measurement. The exploratory test is critical to determine the frequency of all significant emissions. For each mode of operation required to be tested, the frequency spectrum is monitored. Variations in antenna height, antenna orientation, antenna polarization, EUT azimuth, and cable or wire placement is explored to produce the emission that has the highest amplitude relative to the limit.

The final measurements are made based on the findings in the exploratory testing. When making exploratory and final measurements it is necessary to maximize the measured radiated emission. Sub clause 8.3.2 of ANSI C63.4-2014 states that the measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." We consider the "cone of radiation" to be the 3 dB beam width of the measurement antenna.

While the "bore-sighting" technique is not explicitly mentioned in ANSI C63.4-2014, it is a useful technique for measurements using a directional antenna, such as a double-ridged waveguide antenna. Several precautions must be observed, including: knowledge of the beam width of the antenna and the resulting illumination area relative to the size of the EUT, estimation for source of the emission and general location within larger EUTs, measuring system sensitivity, etc.

ANSI C63.4-2014 requires that the measurement antenna is kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. That means that if the directional radiation pattern of the EUT results in a maximum emission at an upwards angle from the EUT, when a directional antenna is used to make the measurement it will be necessary for it to be pointed towards the source of the emission within the EUT. This can be done by either pointing the antenna at an angle towards the source of the emission, or by rotating the EUT, in both height and polarization, to maximize the measured emission. The emission must be kept within the illumination area of the 3 dB beamwidth of the antenna so that the maximum emission from the EUT is measured.

Radiated emissions test characteristics	
Frequency range	9 kHz – Above 960 MHz
Test distance	3 m*
Test instrumentation minimum resolution bandwidth	9 kHz (Below 30 MHz)
	120 kHz (30 MHz - 1,000 MHz)
	1 MHz (Above 1000 MHz)
Detector Type	Quasi peak and Average based on frequency range
Receive antenna scan height	1 m - 4 m
Receive antenna polarization	Vertical/horizontal

* According to Section 15.31 (f) (1): At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

8.2.3 Calculation of the field strength

The field strength is calculated by the following calculation:

Corrected Level = Receiver Level + Correction Factor (without the use of a pre-amplifier)

Corrected Level = Receiver Level + Correction Factor – Pre-amplifier (with the use of a pre-amplifier)

Receiver Level : Receiver reading without correction factors
Correction Factor : Antenna factor + cable loss

For example:
The receiver reading is 32.7 dBµV. The antenna factor for the measured frequency is +2.5 dB (1/m) and the cable factor for the measured frequency is 0.71 dB, giving a field strength of 35.91dBµV/m.
The 35.91dBµV/m value can be mathematically converted to its corresponding level in µV/m.

Level in µV/m = Common Antilogarithm (35.91/20) = 62.44

For test distance other than what is specified, but fulfilling the requirements of Section 15.31 (f) (1) the field strength is calculated by adding additionally an extrapolation factor of 20 dB/decade (inverse linear distance for field strength measurements).

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8.2.4 Result

Radiated emissions (Section 15.109)												
f	Detct	BW	Rx Level	MD	CF	Amplifier	LC	Limit	Margin	EP	Antenna	
											Pol	H
MHz	Type	kHz	dBµV	m	dB	dB	dBµV/m	dBµV/m	dB	°	H/V	cm
41.900	QP	120	**29.9**	3	**13.4**	21.3	**22.0**	40.0	**18.0**	231	V	214
54.570	QP	120	**13.6**	3	**13.6**	21.3	**5.9**	40.0	**34.1**	175	V	286
182.310	QP	120	**20.8**	3	**11.7**	21.3	**11.2**	43.5	**32.3**	140	V	324
196.350	QP	120	**27.5**	3	**9.8**	21.6	**15.7**	43.5	**27.8**	175	V	106
230.040	QP	120	**30.7**	3	**10.2**	21.9	**19.0**	46.0	**27.0**	160	V	310
595.010	QP	120	**18.2**	3	**19.8**	24.0	**14.0**	46.0	**32.0**	15	V	107
Above 960	RMS	1000	**	3			**	54.0			V	
43.340	QP	120	**23.4**	3	**13.5**	21.3	**15.6**	40.0	**24.4**	231	H	214
57.370	QP	120	**23.9**	3	**13.4**	21.3	**16.0**	40.0	**24.0**	175	H	286
88.260	QP	120	**28.0**	3	**8.6**	21.3	**15.3**	43.5	**28.2**	140	H	324
182.310	QP	120	**25.6**	3	**11.7**	21.6	**16.0**	43.5	**27.5**	175	H	106
221.600	QP	120	**27.9**	3	**10.3**	21.9	**16.3**	46.0	**29.7**	160	H	310
945.960	QP	120	**7.5**	3	**24.0**	21.7	**9.8**	46.0	**36.2**	15	H	107
Above 960	RMS	1000	**	3			**	54.0			H	

Measurement uncertainty: ± 4 dB

****No emissions detected**

f: Frequency | Detct : Detector type | BW: Bandwidth | Rx Level : Receiver level | MD: Measurement distance | CF : Correction factor | DEF :Distance extrapolation factor | LC : Level corrected | EP: EUT Position | Pol:Antenna polarization | H: Antenna height

Remark: *[1] noise floor noise level of the measuring instrument ≤ 3.5dBµV @ 3m distance (30 – 1,000 MHz)
Remark: *[2] noise floor noise level of the measuring instrument ≤ 4.5dBµV @ 3m distance (1,000 – 2,000 MHz)
Remark: *[3] noise floor noise level of the measuring instrument ≤ 10dBµV @ 3m distance (2,000 – 5,500 MHz)
Remark: *[4] noise floor noise level of the measuring instrument ≤ 14dBµV @ 3m distance (5,500 – 14,500 MHz)
Remark: *[5] for using a pre-amplifier in the range between 100 kHz and 1,000 MHz
Remark: *[6] for using a pre-amplifier in the range between 1.0 GHz and 18.0 GHz

Test Cables used	K60, K101, K119
Test equipment used	23, 166a, 406, 444, 445a, 660, 667, 668, 669

The equipment passed the conducted tests	**Yes**	~~No~~	~~N.t.~~ *

Test setup photos / test results are attached	**Yes**	~~No~~	Annexe no. 6

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9. Additional information to the test report

Remark	Description
N.t.[1]	Not tested, because not applicable to the EUT
N.t.[2]	Not tested, because not ordered

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10. List of test equipment

State Dec. 12, 2019					
Marking	**Manufacturer**	**SW/Type/Serial-No.**	**Last Cal./Val.**	**Next Cal./Val.**	**No.**
1 Measuring Instruments					
EMI test receiver	*Schwarzbeck*	*FMLK1518*	*Nov 17*	*Nov 20*	*22a*
Attenuator	*Radiall*	*---*	*Nov 19*	*Nov 22*	*62*
Attenuator 3dB	*Suhner*	*6803/17*	*Nov 19*	*Nov 22*	*137*
Attenuator 3dB / 18 GHz	*Suhner*	*3dB/18GHz*	*Nov 19*	*Nov 22*	*299*
Terminator	*Texcan*	*---*	*Nov 19*	*Nov 22*	*304*
Attenuator 6dB / 18 GHz	*Suhner*	*6dB/18GHz*	*Nov 19*	*Nov 22*	*344*
Attenuator 20dB / 20GHz	*Parzich*	*40AH-20*	*Nov 19*	*Nov 22*	*354*
Terminator	*KDI*	*T173CS*	*Nov 19*	*Nov 22*	*490*
Power sensor	*Rohde & Schwarz*	*NRV-Z2*	*Feb 17*	*Feb 20*	*76a*
Variable transformer	*RFT*	*LS 002*	*---*	*---*	*154a*
Variable transformer	*Schunt+Ben*	*---*	*---*	*---*	*155*
Power sensor	*Marconi*	*6914*	*Aug 18*	*Aug 20*	*258*
Power sensor	*Marconi*	*6913*	*Aug 19*	*Aug 21*	*286*
Power sensor	*Rohde & Schwarz*	*NRV-Z31*	*Feb 17*	*Feb 20*	*391*
Power sensor	*Rohde & Schwarz*	*NRP18SN*	*Nov 19*	*Nov 21*	*651*
Coaxial Directional Coupler	*Narda*	*3003-20*	*Jan 18*	*Jan 21*	*370/342*
Coaxial directional coupler	*Mini Circuits*	*ZFDC-20-5*	*Mar 17*	*Mar 20*	*434*
Coaxial directional coupler	*Narda+Suhner*	*---*	*Mar 17*	*Mar 20*	*472/492*
Coaxial High Pass Filter	*Mini circuits*	*NHP-700*	*Mai 18*	*Mai 21*	*435*
Coaxial High Pass Filter	*Mini circuits*	*NHP-200*	*Mai 18*	*Mai 21*	*405*
Coaxial High Pass Filter	*Mini circuits*	*NHP-25+*	*Mai 18*	*Mai 21*	*455*
High Pass Filter	*Mini circuits*	*VHF-3500+*	*Mai 18*	*Mai 21*	*451*
High Pass Filter	*Mini circuits*	*VHF-1200+*	*Mai 18*	*Mai 21*	*452*
Bandpass Filter	*Schomandl*	*BN86871*	*Nov 18*	*Nov 21*	*66*
Bandpass Filter	*Schomandl*	*BN68673*	*Nov 18*	*Nov 21*	*67*
Low Pass Filter	*Mini circuits*	*SLP550*	*Mai 18*	*Mai 21*	*273*
Low Pass Filter	*Mini circuits*	*SLP550*	*Mai 18*	*Mai 21*	*274*
RF Current Probe 9 kHz – 30 MHz	*Rohde & Schwarz*	*ESH2-Z1*	*Jun 18*	*Jun 21*	*42*
VHF- Current Probe 9 kHz – 600 MHz	*Rohde & Schwarz*	*ESV-Z1*	*Jun 18*	*Jun 21*	*43*
Passive Test Probe – 9 kHz – 30 MHz	*TÜV NORD*	*VDE 0876*	*Mai 18*	*Mai 21*	*45*
Coaxial Fixed Attenuator DC – 1 GHz	*Texscan*	*HFP50/10*	*Jul 17*	*Jul 20*	*60*
8 Wire Impedance Stabilisation Network	*Schwarzbeck*	*CAT5 8158*	*Nov 19*	*Nov 21*	*71a*
T-Section - 50 W	*Rohde & Schwarz*	*BN 42441/50*	*Aug 18*	*Aug 21*	*93*
RF Current Injection Clamp 0.15 – 1GHz	*Lüthi GmbH*	*EM 101*	*Nov 19*	*Nov 22*	*156*
Absorbing Clamp MDS 30MHz – 1GHz	*Lüthi GmbH*	*MDS-21*	*Nov 19*	*Nov 22*	*160*
Insertion Unit	*Rohde & Schwarz*	*URV5-Z4*	*Mai 19*	*Mai 22*	*162*
Coaxial RF Termination - 0 – 1000 MHz	*Telewave Inc.*	*TWL 35*	*Nov 18*	*Nov 21*	*164*
Coaxial RF Termination - 0 – 1000 MHz	*Telewave Inc.*	*TWL 60*	*Nov 18*	*Nov 21*	*165*
Fixed Attenuator - DC – 1.5GHz	*Bird*	*Mod/ 8343-060*	*Feb 17*	*Feb 20*	*177*
Rotary Step Attenuator DC – 2 GHz	*Texscan*	*TA – 50*	*Mar 17*	*Mar 20*	*184*
CDN up to 230 MHz	*MEB*	*KEN-M 2 /M 3*	*Nov 19*	*Nov 21*	*264*
Impulse limiter 10 dB	*Rohde & Schwarz*	*ESH3 Z2*	*Mai 19*	*Mai 22*	*272*

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Fixed Attenuator - DC – 18 GHz | 30 dB	*MTS*	---	*Nov 17*	*Nov 20*	*275*
Fixed Attenuator - DC – 18 GHz | 30 dB	*MTS*	---	*Mar 17*	*Mar 20*	*276*
Passive Probe - 9 kHz – 30 MHz | 2.5 kΩ	*RFT*	*TK 121*	*Jun 17*	*Jun 20*	*302*
Termination Resistor 50 W	*Radiall*	*404011*	*Nov 18*	*Nov 21*	*309*
Branching device (4x) 50W	*Rohde & Schwarz*	*892228/20*	*Sep 19*	*Sep 22*	*320*
Dummy-Load - 2 – 18 GHz	*Narda*	*MODEL 367NF*	*Nov 19*	*Nov 22*	*343*
DC Block Adapter - 0.045 – 26.5 GHz	*Hewlett-Packard*	*11742A*	*Apr 18*	*Apr 21*	*356*
Insertion Unit 10V | 9 kHz 1000 MHz	*Rohde & Schwarz*	*URV 5-Z2*	*Mai 19*	*Mai 22*	*367*
RF Probe 0.02 – 1000 MHz	*Rohde & Schwarz*	*395.2680.02*	*Mai 19*	*Mai 22*	*368*
150W attenuator	*Weinschel*	*49-20-33*	*Oct 19*	*Oct 22*	*374*
Fixed Coaxial Attenuator - DC – 18 GHz	*Weinschel*	*23-6-34*	*Feb 17*	*Feb 20*	*375*
Insertion Unit 9 kHz – 2000 MHz	*Rohde & Schwarz*	*URY-Z2*	*Oct 19*	*Oct 22*	*416*
Panoramic Adapter (Monitoring)	*Schwarzbeck*	*PAN1550*	---	---	*429*
DC-BLOCK - DC – 6.0 GHz |50 W	*Mini Circuits*	*BLK-6-N+*	*Aug 18*	*Aug 21*	*462*
Terminating resistor 50Ω SMA	---	---	*Nov 19*	*Nov 22*	*493*
Terminating resistor 50Ω SMA	---	*SC 60-601-0000-31*	*Nov 19*	*Nov 22*	*497*
Fixed Attenuator –0 – 40 GHz	*Anritsu*	*41KC-10*	*Nov 19*	*Nov 22*	*504*
Fixed Attenuator – 0 – 40 GHz	*Anritsu*	*41KC-10*	*Nov 19*	*Nov 22*	*505*
Fixed Attenuator – 0 – 40 GHz	*Anritsu*	*41KC-6*	*Nov 19*	*Nov 22*	*506*
Fixed Attenuator – 0 – 40 GHz	*Anritsu*	*41KC-3*	*Nov 19*	*Nov 22*	*507*
Electric Dummy Load	*RA-NAV Lab.*	*DA-75U*	*Feb 17*	*Feb 20*	*526*
Power Splitter / Combiner	*Mini Circuits*	*ZESC-2-11*	*Nov 19*	*Nov 22*	*527*
3 Way Power Splitter / Combiner	*Mini Circuits*	*ZFSC-3-1*	*Mar 17*	*Mar 20*	*529*
3 Way Power Splitter / Combiner	*Mini Circuits*	*ZFSC-3-1*	*Mar 17*	*Mar 20*	*530*
RF-Attenuator - 6 dB	*Haefely*	---	*Mar 17*	*Mar 20*	*540*
RF-Attenuator - 1– 120 MHz | 12 dB	*Haefely*	---	*Mar 17*	*Mar 20*	*541*
RF-Attenuator - 1– 120 MHz | 39 dB	*Haefely*	---	*Mar 17*	*Mar 20*	*542*
LISN 9kHz – 30 MHz	*Schwarzbeck*	*NNLA 8120*	*Jul 17*	*Jul 20*	*551*
HV Probe P6013A	*Tektronix*	*P6013A*	*Mai 19*	*Mai 22*	*559*
VLISN 5µH	*Schwarzbeck*	*8125-1944*	*Nov 19*	*Nov 21*	*585*
VLISN 5µH	*Schwarzbeck*	*8125-1945*	*Nov 19*	*Nov 21*	*586*
20dB Attenuator, up to 18 GHz	*Mini Circuit*	*BW-N20W5+*	*Nov 19*	*Nov 22*	*594*
Step Attenuator - DC-18 GHz | 0 to 11 dB	*Hewlett-Packard*	*8494B*	*Nov 19*	*Nov 22*	*604*
Analyser Reference System	*Spitzenberger & Spies*	*ARS 16/1*	*Jan 17*	*Jan 20*	*606a/b/c*
Capacitive Coupling Clamp 5 kV	*Schlöder*	*SFT 415*	*Mai 17*	*Mai 20*	*608*
RF Probes for 50 Ω Receivers	*Schwarzbeck*	*TK 9416*	---	---	*612*
Current probe TRMS	*BEHA APROB*	*CHB35*	*Oct 19*	*Oct 22*	*652*
Semi Anechoic Chamber	*COMTEST*	*SAC-3m*	*Apr 19*	*Apr 20*	*660*
Maturo Turntable	*Maturo*	*TT2.0SI (SN: TT2.05SI/817 SW: 1.0.0.4473)*	---	---	*667*
Maturo Antenna Mast	*Maturo*	*TAM4.5-E-10kg (SN: 10011/216/2588.01)*	---	---	*668*
Maturo Controller	*Maturo*	*FCU3.0/009/2588.01 (SN: 10014/2019)*	---	---	*669*
2 Generators					
EFT/Burst Generator	*Schlöder*	*SFT 1400*	*Mai 17*	*Mai 20*	*46a*
Hybrid Generator	*Schlöder*	*CWG1500*	*Nov 19*	*Nov 22*	*522*
ESD Generator	*Schlöder*	*SESD 200*	*Jan 17*	*Jan 20*	*112a*
ESD Generator	*Schlöder*	*SESD 216*	*Oct 19*	*Oct 21*	*653*

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Signal Generator	*Rohde & Schwarz*	*SMB100A*	*Jun 18*	*Jun 20*	*571*
RF Generator	*Rohde & Schwarz*	*SGT100A*	*Apr 18*	*Apr 20*	*636*
Signal Generator	*Rohde & Schwarz*	*SMG*	*Mai 19*	*Mai 21*	*136*
Signal Generator	*Marconi*	*2042*	*Mai 18*	*Mai 20*	*6*
Signal Generator	*Marconi*	*2024*	*Mai 18*	*Mai 20*	*213*
Puls Generator	*EM Test*	*MPG 200*	*Cal. before use*	*Cal. before use*	*181*
Surge Generator	*H+H*	*MIG063 IN S-T*	*Mar 18*	*Mar 20*	*561*
Voltage Interruption Simulator	*Schlöder*	*VIS1700*	*Mar 18*	*Mar 20*	*241a*
3. Antennas					
Loop Ant. 9kHz-30MHz	*Schwarzbeck*	*FMZB1516*	*Sep 19*	*Sep 21*	*23*
Biconical Ant. 30-300 MHz	*Schwarzbeck*	*VHA9103/BBA9106*	*Apr 17*	*Apr 20*	*80/616*
Double Ridged Horn	*Schwarzbeck*	*BBHA9120C*	*Oct 19*	*Oct 21*	*169*
Double Ridged Horn	*Schwarzbeck*	*BBHA 9120A*	*Mar 17*	*Mar 20*	*284*
Tri-Log Broadband	*Schwarzbeck*	*VULB9168*	*Mai 19*	*Mai 21*	*406*
Broadband Horn 14-40 GHz	*Schwarzbeck*	*BBHA9170*	*Nov 19*	*Nov 21*	*442*
Log Per Antenna 0.7-20 GHz	*Schwarzbeck*	*STLP9148*	*Mai 19*	*Mai 21*	*445a*
Bilog Ant.	*Schwarzbeck*	*CBL6111*	*Cal. before use*	*Cal. before use*	*167*
Balun with biconical BBA9106 (TX)	*Schwarzbeck [only for NSA]*	*VHBB9124*	*Nov 19*	*Nov 21*	*0796*
Balun with biconical BBA9106 (RX)	*Schwarzbeck [only for NSA]*	*VHBA9123*	*Nov 19*	*Nov 21*	*9758*
Log periodic Ant (TX)	*Schwarzbeck [only for NSA]*	*UHALP9108*	*Nov 19*	*Nov 21*	*9002*
Log periodic Ant (RX)	*Schwarzbeck [only for NSA]*	*UHALP9108*	*Nov 19*	*Nov 21*	*9003*
Spectrum analyser Mixer 220 – 325 GHz	*Radiometer Physics*	*SAM325*	*Aug 19*	*Aug 21*	*591*
Dual Mode Potter Horn 220-325 GHz	*Radiometer Physics*	*325-WR2*	*---*	*---*	*592*
Dual Mode Potter Horn 75-110 GHz	*Radiometer Physics*	*---*	*---*	*---*	*649*
Gain Horn Antenna 50-75 GHz	*Dorado*	*GH-15-20*	*---*	*---*	*511*
Standard Gain Horn 1.7 – 2.6 GHz	*Narda*	*645*	*---*	*---*	*514*
W-band active Sextupler with input drive amplifier	*Spacek Labs Inc.*	*AW-6XW-0*	*---*	*---*	*221a*
60 to 65 GHz active frequency quadrupler	*Spacek Labs Inc.*	*A625-4XW-0*	*---*	*---*	*222a*
Harmonic Mixer 40-60 GHz	*Rohde & Schwarz*	*FS-Z60*	*Jul 19*	*Jul 21*	*515*
Gain Horn Antenna 40-60 GHz	*Dorado*	*GH-19-20*	*---*	*---*	*518*
Spectrum analyser Mixer 90-140 GHz	*Radiometer Physics*	*SAM140*	*Aug 19*	*Aug 21*	*545*
Dual Mode Potter Horn 90-140 GHz	*Radiometer Physics*	*140-WR8*	*---*	*---*	*547*
Spectrum analyser Mixer 140-220GHz	*Radiometer Physics*	*SAM220*	*Aug 19*	*Aug 21*	*546*
Dual Mode Potter Horn 140-220 GHz	*Radiometer Physics*	*220-WR5.1*	*---*	*---*	*548*
Harmonic Mixer 60-90 GHz	*Rohde & Schwarz*	*FS-Z90*	*Jul 19*	*Jul 21*	*501*
Dual Mode Potter Horn 60-90 GHz	*Radiometer Physics*	*90-W12*	*---*	*---*	*549*
Gain Horn 33-55 GHz	*Dorado*	*---*	*---*	*---*	*383*
Gain Horn 50-75 GHz	*Dorado*	*---*	*---*	*---*	*384*
Gain Horn 75-110 GHz	*Dorado*	*---*	*---*	*---*	*385*
Standard Gain Ant. 26.5-40 GHz	*Maury Microwave*	*U211C*	*---*	*---*	*532/628*
4. Amplifier					
RF pre-amplifier 100kHz-1.3GHz	*HP*	*8447E*	*Aug 18*	*Aug 20*	*166a*
Mitteq amplifier 26.5-40 GHz	*Mitteq*	*---*	*Mar 17*	*Mar 20*	*223a*
RF pre-amplifier 1-18GHz	*Narda*	*---*	*Mar 18*	*Mar 20*	*345*
Mitteq Amplifier 18-26GHz	*Mitteq*	*---*	*Mai 17*	*Mai 20*	*433*
Microwave amplifier 12-18GHz	*Schwarzbeck*	*BBV9719*	*Mar 19*	*Mar 21*	*443*
Microwave amplifier 0.5-18GHz	*Schwarzbeck*	*BBV9718*	*Mar 19*	*Mar 21*	*444*

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5. Test/Control software					
Maturo mcApp	*Maturo*	*SW: V3.4.9.4537 (19.04.04)*	---	---	---
SPS EMC	*Spitzenberger & Spies*	*SW: V4.1.3*	---	---	---
EMV-Soft	*Schlöder GmbH*	*SW: V11.95*	---	---	---
ISMISO	*EM Test AG*	*SW:V3.63*	---	---	---
6. Power supplies					
Programmable Power Supply	*Fluke*	*PM 2813*	---	---	*28a*
Power Supply	*HP*	---	---	---	*125*
Power Supply	*Sorensen*	*LM 30-6*	---	---	*134a*
Power Supply	*HP*	*6034L*	---	---	*226*
Regulated Power Supply	*Farnell*	*AP60-50*	---	---	*408*
Power Supply	*EA*	*PSI 8080-40-DT*	---	---	*560*
Power Supply	*HP*	*6032A*	---	---	*644*
7. Meters					
Microwave Frequency Counter	*Hewlett-Packard*	*5351A*	*Nov 18*	*Nov 20*	*130*
Temperature test cabinet	*Heraeus Vötsch*	*VMT04/35*	---	---	*102a*
Temperature test cabinet	*Brabender*	*TTE 32/40 H*	---	---	*87*
Digital-Hygro-Thermometer	*Greisinger*	*GFTH95*	*Nov 19*	*Nov 21*	*57a*
Volt & RF Power Meter	*Rohde & Schwarz*	*URV35*	*Mai 19*	*Mai 21*	*161*
Spectrum Analyzer - 9 kHz – 18 GHz	*Rohde & Schwarz*	*FSL18*	*Jul 18*	*Jul 20*	*171a*
Multimeter	*Gossen Metrawatt*	*Metrahit pro*	*Nov 19*	*Nov 21*	*215a*
Radio communication Service Monitor 0.4 – 1000 MHz	*Rohde & Schwarz*	*CMS 54*	*Jun 17*	*Jun 20*	*229*
Humidity/Temperature Measuring device	*TESTO*	*Testo 625*	*Oct 19*	*Oct 21*	*259a*
Volt & RF Power Meter	*Rohde & Schwarz*	*URV35*	*Nov 19*	*Nov 21*	*271*
Multimeter	*Gossen Metrawatt*	*Metrahit 26S*	*Aug 17*	*Aug 20*	*313*
Spectrum Analyzer 9 kHz – 40 GHz	*Anritsu*	*MS2668C*	*Jan 17*	*Jan 20*	*359a*
Level and Power Meter - 9 kHz – 3 GHz	*Rohde & Schwarz*	*URY*	*Mai 19*	*Mai 21*	*307*
Temperature test device	*Ahlhorn*	*Almemo 2390-5 PT100*	*Feb 17*	*Feb 20*	*401*
Signal & Spectrum Analyser 10 Hz-30 GHz	*Rohde & Schwarz*	*FSV-30*	*Jul 19*	*Jul 21*	*502*
Digital-Vacuum-/Barometer	*Greisinger*	*GDH12AN*	*Oct 19*	*Oct 21*	*558*
Temperature test cabinet	*Weiß Umwelttechnik*	*WKL 34/40*	*Aug 18*	*Aug 21*	*562*
Digital Storage Oscilloscope	*Tektronix*	*TDS 2012C*	*Oct 19*	*Oct 21*	*568*
Miniature Flat, Zero-Biased Schottky Detector –0.1– 18 GHz	*Narda*	*4503A-03*	*Jun 17*	*Jun 20*	*613*
Diode Detector – 0.1 – 2.5 GHz	*Spinner*	*BN 7545*	*Sep 17*	*Sep 20*	*617*
Digital-Vacuum-/Barometer	*Greisinger*	*GDH-200-14*	*Oct 19*	*Oct 21*	*632*
EMI Test receiver ESW26	*Rohde & Schwarz*	*R&S ESW26 (SN: 101383/26 SW: R&S ESW1.61))*	*Nov 19*	*Nov 20*	*665*
Signal analyser Keysight 50GHz	*Keysight*	*UXA N9040B (SN: MY57213006 SW: A.24.58/2019.0702)*	*Nov 19*	*Nov 20*	*666*

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11. Cable list

Internal Cable Number	Connector Type	Frequency Range (MHz)	Cable Length (m)	Manufacturer
4a	BNC	10 – 1500	0.50	Telemeter
14a	BNC	10 – 1000	1.00	Telemeter
17a	APC3.5	10 – 26500	2.13	Huber + Suhner
18a	APC3.5	10 – 26500	2.13	Huber + Suhner
22	BNC	10 – 1000	1.50	---
27	BNC	10 – 1000	1.00	Fabrica Milanese Cond.
40	BNC	---	0.50	Aircell
43	SMA	10 – 18000	0.50	Rosenberger
44	SMA	---	0.50	Huber + Suhner
45	SMA	10 – 18000	0.50	Huber + Suhner
48	SMA		0.50	Huber + Suhner
49	N	10 – 18000	1.00	Huber + Suhner
50	N	10 – 18000	1.00	Huber + Suhner
51	N	10 – 18000	1.00	Huber + Suhner
52	N	10 – 18000	1.00	Huber + Suhner
54	BNC	10 – 3500	1.00	Aircell
58	N	10 – 18000	2.00	Huber + Suhner
59	N	10 – 18000	1.00	Huber + Suhner
60	N	10 – 18000	2.00	Huber + Suhner
61	N	10 – 18000	1.00	Huber + Suhner
62	SMA	---	0.50	Huber + Suhner
63	SMA	10 – 18000	0.50	Huber + Suhner
64	SMA	10 – 18000	0.50	Huber + Suhner
65	APC3.5	10 – 26500	0.60	---
66	APC3.5	10 – 26500	0.60	---
67	APC3.5	10 – 26500	0.60	---
68	APC3.5	10 – 26500	0.60	---
72	BNC	---	0.40	---
73	BNC	---	0.40	---
76	SMA	10 – 30000	3.00	Gore
79	BNC/N	10 – 1000	5.00	---
80	SMA	---	0.25	Huber + Suhner
87	SMA	10 – 18000	0.15	Huber + Suhner
88	SMA	10 – 18000	0.15	Huber + Suhner
89	SMA	10 – 18000	0.15	Huber + Suhner
90	SMA	10 – 18000	0.15	Huber + Suhner
91	SMA	---	1.50	Huber + Suhner
94	BNC	---	1.10	---
95	BNC	---	0.80	---
96	BNC	---	0.80	---
100	N	10 – 26500	6.00	Rosenberg
101	N	10 – 18000	2.90	Huber + Suhner
102	SMA	10 – 18000	2.00	Huber + Suhner
111	BNC	10 – 1000	0.50	---
112	BNC	10 – 1000	0.50	---
114	SMA	10 – 18000	0.25	Huber + Suhner
116	SMA	10 – 18000	0.25	Huber + Suhner
119	N	10 – 20000	8.00	Jyebao
121	SMA	10 – 18000	1.50	Huber + Suhner
122	SMA	10 – 18000	2.00	Huber + Suhner
123	SMA	10 – 18000	2.00	Huber + Suhner
145	SMA	10 – 26500	8.00	Huber + Suhner
147	APC3.5	10 – 40000	1.50	Jyebao

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Internal Cable Number	Connector Type	Frequency Range (MHz)	Cable Length (m)	Manufacturer
148	APC3.5	10 – 40000	3.00	Jyebao
151	SMA	10 – 18000	0.50	Rosenberger
152	SMA	10 – 18000	0.50	Rosenberger
154	BNC	10 – 1000	1.00	---
155	N/BNC	---	0.85	---
157	BNC	---	0.50	---
158	SMA	10 – 26500	2.00	Huber + Suhner
160	SMA	10 – 18000	0.40	Nortel Networks
161	SMA	10 – 18000	1.00	Huber + Suhner
162	APC35	10 – 26500	2.00	Huber + Suhner
163	APC3.5	10 - 26500	2.00	Huber + Suhner
164	APC3.5	10 – 26500	2.00	Huber + Suhner
165	APC2.9	10 – 26500	2.00	Huber + Suhner
166	APC3.5	10 – 40000	---	---
167	APC3.5	10 – 40000	1.00	Jyebao
168	APC3.5	10 – 40000	1.00	Jyebao
169	APC3.5	10 – 40000	1.00	Jyebao
170	APC3.5	10 – 40000	1.00	Jyebao
171	APC3.5	10 – 40000	1.00	Jyebao
172	SAM	---	0.90	Huber + Suhner
173	APC	10 – 26500	2.00	Huber + Suhner
174	APC	10 – 26500	---	Huber + Suhner
175	SMA	10 – 18000	0.40	Huber + Suhner
176	N-SMA	10 – 18000	0.50	Huber + Suhner
188	N	10 – 18000	5.00	Huber + Suhner
EMV 1	BNC	---	2.00	Henn
EMV 2	BNC	10 – 1000	2.00	Henn
EMV 4	BNC	---	9.70	Henn
EMV 5	BNC	---	3.80	Henn
EMV 6	BNC/N	10 – 1000	5.00	Lüthi
EMV 7	BNC	10 – 1000	1.50	Henn
EMV 8	BNC	10 – 1500	1.70	Henn
EMV 9	BNC	10 – 1000	1.70	Henn
EMV 11	BNC	---	5.20	Hasselt
EMV 12	BNC	10 – 1000	2.40	Hasselt
EMV 13	BNC	10 – 1000	4.10	Hasselt
EMV 14	BNC	10 – 1000	2.50	Hasselt
EMV 15	BNC	---	0.90	Henn
EMV 16	Fischer	---	2.00	---
EMV 18a	Fischer	---	1.00	---
EMV 19a	Fischer	---	1.50	---
KISN2	BNC	10 – 2000	4.80	---

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End of test report

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