

FCC Part 15B Compliance Test Report

Test Report no.:	Cph_FCC_0824_05.doc	Date of Report:	17-May-2008
Number of pages:	12	Customer's Contact person:	Bill Griffin
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FCC listing no.:	99059		
IC recognition no.:	661AD-1		
Tested devices/ accessories:	Phone: RM-429 (HW: 0110), Battery: BL-5C, AC charger: AC-3U, Data Cable; CA-101, Laptop; T43		
FCC ID:	QMNRM-429	IC:	661X-RM429
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart B, ANSI C63.4 (2003), ICES-003, CISPR 22 and IC standards RSS-132 (Issue 2, September 2005), RSS-133 (Issue 4, February 2008), RSS-139 (Issue 1, February 2008) and RSS-210 (Issue 7, June 2007). Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test Results:	The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document.		
Date and signature for the contents:			

Niels Christian Andersen, Test System Manager

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	19-May-2008
Testing completed	17-May-2008
The customer's contact person	Bill Griffin
Test Plan referred to	T:\Projects\RM-4\TestPlan_RS\RS_Testplan_RM-429.xls
Notes	None
Document name	T:\Projects\RM-429\EMC\Results\FCC\Cph_FCC_0824_05.doc

1.1. EUT and Accessory Information

The EUT is a 4-band (GSM850/900/1800/1900) mobile phone with GPRS, EGPRS and Bluetooth. GSM bands are tested in idle mode. Bluetooth is tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
AC-Charger	AC-3U	3943497473100523564;0675372	-	-	-	25370
Battery	BL-5C	06703984620400195F20832127	-	-	-	25371
Phone	RM-429	004401/10/063980/2	0110	-	V03.46	25372
Laptop	T-43	L3FLF78	-	-	-	29203
Data Cable	CA-101	B:3.1	1	1	-	25368

1.2. Summary of Test Results

GSM 850:

Section in CFR 47	Section in ICES-003 (RSS-132)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	Passed
15.109, a	5.5 (4.6)	Radiated emissions	Passed

GSM 1900:

Section in CFR 47	Section in ICES-003 (RSS-133)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5 (6.6)	Radiated emissions	Passed

Bluetooth:

Section in CFR 47	Section in ICES-003	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5	Radiated emissions	Passed

PASSED
FAILED
NP

The EUT complies with the essential requirements in the standard.
The EUT does not comply with the essential requirements in the standard.
The test was not performed by the TCC Nokia Copenhagen Laboratory.

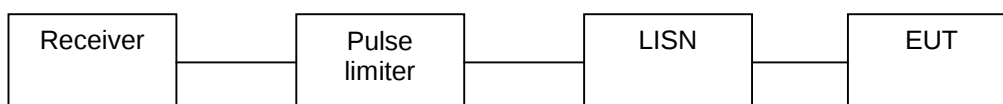
CONTENTS

1. Summary for FCC Part 15B Compliance Test Report.....	2
1.1. EUT and Accessory Information	2
1.2. Summary of Test Results	2
2. AC powerline conducted emissions (FCC §15.107, ICES-003 section 5.3)	4
2.1. Test setup	4
2.2. Test method and limit.....	4
2.3. GSM 850 Test results	5
3. Radiated emissions (FCC §15.109, ICES-003 section 5.5, RSS-132 4.6, RSS-133 6.6, RSS-139 6.6)	6
3.1. Test setup	6
3.2. Test method and limit.....	6
3.3. GSM 850 Test results	7
3.4. GSM 1900 Test results	8
3.5. Bluetooth Test results	9
4. Test Equipment.....	11
4.1. Conducted measurements	11
4.2. Radiated measurements	11

2. AC powerline conducted emissions (FCC §15.107, ICES-003 section 5.3)

EUT with DUT number	RM-429 Dut 25372
Accessories with DUT numbers	BL-5C Dut 25371, AC-3U Dut 25370, CA-101 Dut 25368, T-43 Dut 29203
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	Continuous data transfer was active between the phone and the computer during the test.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23.9 / 46.0 101.8
Date of measurements	10-Jun-2008
Measured by	Allan F. Henriksen

2.1. Test setup



2.2. Test method and limit

The measurement is made according to ANSI C63.4-2003 as follows:

The EUT is placed on a wooden table 80 cm above the reference groundplane.

The EUT is connected via LISN to a test power supply.

The measurement results are obtained as described below:

$$U [dB\mu V] = U_{RX} + A_{TOT}$$

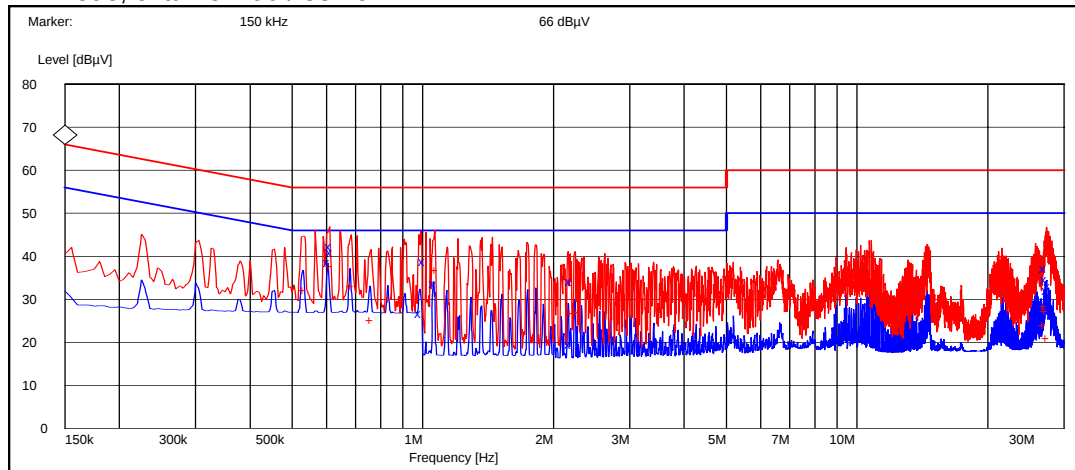
Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

CISPR 22 Class B limits

Frequency range [MHz]	Quasi peak limit [dBμV]	Average limit [dBμV]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

2.3. GSM 850 Test results

RX mode, channel 190 / 881.6 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.610000	38.50	N	Passed
0.615000	42.30	L1	Passed
0.620000	40.90	L1	Passed
0.990000	26.70	L1	Passed
1.010000	38.80	N	Passed
1.070000	33.80	L1	Passed
2.200000	19.50	L1	Passed
2.205000	34.30	N	Passed
27.265000	37.30	N	Passed
27.350000	34.70	N	Passed
27.660000	32.10	N	Passed
27.885000	32.90	N	Passed

Average (RBW: 9 kHz)

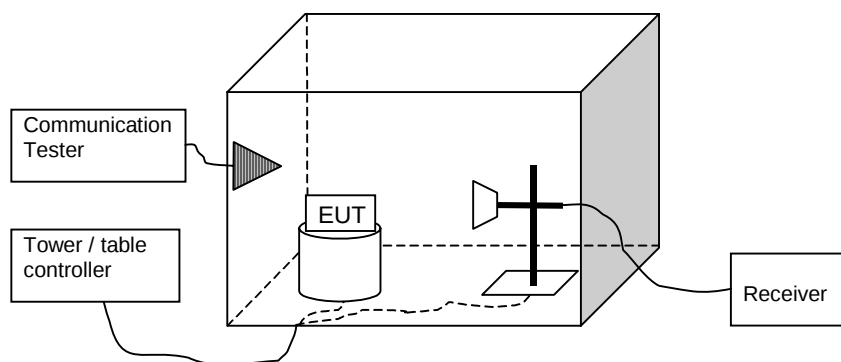
Frequency [MHz]	U [dBμV]	Line	Result
0.535000	32.10	N	Passed
0.615000	37.70	N	Passed
0.690000	33.10	N	Passed
0.765000	25.20	N	Passed
0.845000	30.10	N	Passed
1.080000	36.80	N	Passed
2.210000	26.60	N	Passed
2.290000	26.90	N	Passed
27.120000	24.00	N	Passed
27.235000	28.30	N	Passed
27.395000	27.20	N	Passed
27.575000	20.90	N	Passed

3. Radiated emissions

(FCC §15.109, ICES-003 section 5.5, RSS-132 4.6, RSS-133 6.6, RSS-139 6.6)

EUT with DUT number	RM-429 Dut 25372
Accessories with DUT numbers	BL-5C Dut 25371, AC-3U Dut 25370, CA-101 Dut 25368, T-43 Dut 29203
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	Continuous data transfer was active between the phone and the computer during the test.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 40 102.0
Date of measurements	17-Jun-2008
Measured by	Christian Andersen

3.1. Test setup



3.2. Test method and limit

The measurement is made according to ANSI C63.4-2003as follows:

The measurement is performed in the Semi-Anechoic Chamber with conducting metal floor.

The measurement distance is 3 m.

The EUT is placed on a nonconductive plate at 80 cm height.

For each suspected frequency, the turntable is rotated 360 degrees and antenna is scanned from 1 to 4 m. This is repeated for both horizontal and vertical receive antenna polarizations.

The emissions less than 20 dB below the permissible value are reported.

The measurement results are obtained as described below:

$$E [\mu\text{V/m}] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + AF - G_{PREAMP}$).

CISPR 22 and FCC Part 15 Class B limits (3 m measurement distance)

Frequency range [MHz]	Quasi peak limit [dBμV/m]	Average limit [dBμV/m]	Peak limit [dBμV/m]
30 – 230	40	-	-
230 – 1000	47	-	-
Above 1000	-	54	74

3.3. GSM 850 Test results

RX mode, channel 128 / 869.2 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3476.800000	35.90	62.37	39.90	-4.0	HORIZONTAL	Passed
6953.600000	45.70	192.75	38.10	7.6	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3476.800000	23.00	14.13	27.00	-4.0	HORIZONTAL	Passed
6953.600000	32.70	43.15	25.10	7.6	VERTICAL	Passed

RX mode, channel 190 / 881.6 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
31.583367	41.70	121.62	55.50	-13.8	VERTICAL	Passed
39.016834	33.00	44.67	51.60	-18.6	VERTICAL	Passed
50.640882	35.00	56.23	61.30	-26.3	VERTICAL	Passed
175.350501	32.30	41.21	58.50	-26.2	HORIZONTAL	Passed
881.563527	60.20	1023.29	71.90	-11.7	VERTICAL	Passed

*881.6 MHz frequency is coming from communication tester and thus ignored.

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1494.489980	25.70	19.28	31.40	-5.7	VERTICAL	Passed
1589.678357	26.30	20.65	31.30	-5.0	VERTICAL	Passed
1614.732465	26.60	21.38	31.00	-4.4	VERTICAL	Passed
2295.089178	36.90	69.98	36.90	0.0	VERTICAL	Passed
2450.393788	30.70	34.28	30.60	0.1	VERTICAL	Passed
2983.467936	34.90	55.59	29.20	5.7	VERTICAL	Passed

RX mode, channel 251 / 893.8 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
3575.200000	36.20	64.57	39.50	-3.3	HORIZONTAL	Passed
7150.400000	42.40	131.83	33.70	8.7	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
3575.200000	23.10	14.29	26.40	-3.3	HORIZONTAL	Passed
7150.400000	29.20	28.84	20.50	8.7	VERTICAL	Passed

3.4. GSM 1900 Test results

RX mode, channel 512 / 1930.2 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
3860.000000	37.40	74.13	39.90	-2.5	HORIZONTAL	Passed
7720.000000	42.10	127.35	32.60	9.5	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
3860.000000	24.40	16.60	26.90	-2.5	HORIZONTAL	Passed
7720.000000	29.50	29.85	20.00	9.5	HORIZONTAL	Passed

RX mode, channel 661 / 1960.0 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
31.383367	33.50	47.32	47.10	-13.6	VERTICAL	Passed
43.607415	29.50	29.85	51.10	-21.6	VERTICAL	Passed
91.584569	14.20	5.13	39.90	-25.7	VERTICAL	Passed

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
1959.919840	63.90	1566.75	66.90	-3.0	VERTICAL	Passed
3919.839679	39.10	90.16	41.70	-2.6	HORIZONTAL	Passed
7840.181363	47.20	229.09	37.00	10.2	VERTICAL	Passed

*1960.0 MHz frequency is coming from communication tester and thus ignored.

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1605.706413	26.70	21.63	31.30	-4.6	VERTICAL	Passed
1959.919840	63.10	1428.89	66.10	-3.0	VERTICAL	Passed
2295.589178	35.40	58.88	35.40	0.0	VERTICAL	Passed
2987.467936	34.50	53.09	28.70	5.8	VERTICAL	Passed
3920.339679	24.80	17.38	27.40	-2.6	HORIZONTAL	Passed
7840.181363	33.00	44.67	22.80	10.2	VERTICAL	Passed

*1960.0 MHz frequency is coming from communication tester and thus ignored.

RX mode, channel 810 / 1989.8 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3980.000000	37.00	70.79	39.40	-2.4	HORIZONTAL	Passed
7960.000000	43.40	147.91	32.90	10.5	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3980.000000	23.90	15.67	26.30	-2.4	HORIZONTAL	Passed
7960.000000	30.20	32.36	19.70	10.5	VERTICAL	Passed

3.5. Bluetooth Test results

TX mode, channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	36.30	65.31	36.20	0.1	HORIZONTAL	Passed
7206.000000	41.40	117.49	32.50	8.9	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	23.30	14.62	23.20	0.1	HORIZONTAL	Passed
7206.000000	28.90	27.86	20.00	8.9	VERTICAL	Passed

TX mode, channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
37.635872	19.50	9.44	37.10	-17.6	VERTICAL	Passed
74.548497	18.20	8.13	45.00	-26.8	VERTICAL	Passed
126.532866	20.50	10.59	45.70	-25.2	HORIZONTAL	Passed

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
7298.593186	42.70	136.46	33.20	9.5	VERTICAL	Passed
7428.853707	43.30	146.22	33.90	9.4	VERTICAL	Passed
17436.375752	51.40	371.54	29.00	22.4	HORIZONTAL	Passed
17908.313627	58.60	851.14	29.80	28.8	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
7298.593186	29.90	31.26	20.40	9.5	VERTICAL	Passed
7430.853707	30.30	32.73	20.90	9.4	VERTICAL	Passed
17439.875752	38.70	86.10	16.40	22.3	HORIZONTAL	Passed
17904.813627	45.70	192.75	16.80	28.9	HORIZONTAL	Passed

TX mode, channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	37.20	72.44	36.90	0.3	HORIZONTAL	Passed
7440.000000	43.20	144.54	33.70	9.5	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	24.40	16.60	24.10	0.3	HORIZONTAL	Passed
7440.000000	30.00	31.62	20.50	9.5	HORIZONTAL	Passed

4. Test Equipment

4.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
13037	Power Supply 0-15V 10A	EA3012	LP Instruments	15C, 15B
13513	Pulse Limiter 9KHz-30MHz	ESH3Z2	Rohde&Schwarz	15C, 15B
13666	EMI Test Reciever 9KHz-2,5GHz	ESPC	Rohde&Schwarz	15C, 15B
13935	Two Lines Artificial Mains Network	ESH3-Z5	Rohde&Schwarz	15C, 15B
16995	Directional Coupler 20dB 0,5-2,0 GHz SMA Conn.	1538RA-20	Weinschel	15C, 15B
18772	Shielded Chamber	RFD-100	ETS-Lindgren	15C, 15B
19171	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	15C, 15B
11386	System DC Power Supply	HP6632A	Hewlett Packard	22/24/27, 15C, 15B
19678	Spectrum Analyzer 26 GHz	FSP	Rohde&Schwarz	22/24/27, 15C, 15B
16601	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
19625	Vötsch Climatic Chamber	VT4002EMC	Vötsch	22/24/27, 15C, 15B
13357	Rohde & Schwartz Signal Generator	SMP02	Rohde&Schwarz	22/24/27, 15C, 15B
20168	Bluetooth EDR Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B

4.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
18416	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
	Programmable Relay Switching System	-----	Pickering	22/24/27, 15C, 15B
15742	Programmable Relay Switching System	-----	Pickering	22/24/27, 15C, 15B
14020	Power Supply Module Relay Switching System 45W	10-910-002	Pickering	22/24/27, 15C, 15B
15743	Power Supply Module Relay Switching System 50W	10-910L-001	Pickering	22/24/27, 15C, 15B
16490	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24/27, 15C, 15B
	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24/27, 15C, 15B
20078	Relay 2x6 Chnl μ Wave Mux	10-785B-522	Pickering	22/24/27, 15C, 15B
14021	Relay Dual 6 Chnl μ Wave Mux	10-785-522		22/24/27, 15C, 15B
	Relay Dual 6 Chnl μ Wave Mux	10-785-522		22/24/27, 15C, 15B
17644	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16948	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16949	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
18792	Multi Device Controller	2090	ETS-EMCO	22/24/27, 15C, 15B
14963	RF Preamplifier 100MHz-4GHz (Metal Chassis)	AFS3-00100400	Miteq/NMP Cph	22/24/27, 15C, 15B
18861	EMI Test Receiver 20Hz-26,5GHz	ESI	Rohde&Schwarz	22/24/27, 15C, 15B
20335	Ultra Broadband Antenna Ultralog 30-3000MHz	HL562	Rohde&Schwarz	22/24/27, 15C, 15B
18773	Shielded Chamber	RFD-100	ETS-Lindgren	22/24/27, 15C, 15B
18774	Shielded Chamber	RFSD-F/A-100	ETS-Lindgren	22/24/27, 15C, 15B
19151	High Pass Filter 3GHz	WHJS3000-10SS	Wainwright	22/24/27, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
	WHK3.0/18G-10ss			
13937	Ultra Stable Notch Filter 850MHz	WRCA902.4-0.2/40-6SS	Wainwright Instruments	22/24/27, 15C, 15B
13936	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright Instruments	22/24/27, 15C, 15B
14114	Highpass filter	WHK1000-12SS	Wainwright Instruments	22/24/27, 15C, 15B
14188	Ultra Stable Notch Filter 902,4MHz	WRCA902.4-0.2/40-6SS	Wainwright	22/24/27, 15C, 15B
14187	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright	22/24/27, 15C, 15B
16633	Ultra Stable Notch Filter 1880,0MHz	WRCD1880.0-0.2/40-10SS	Wainwright	22/24/27, 15C, 15B
19587	BT/WLAN Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	22/24/27, 15C, 15B
20115	WDCMA Band 2 filter		Wainwright	24, 15C, 15B
20114	WDCMA Band 4 filter	WRCG1737/1743-1733/1747-40/6SS	Wainwright	27, 15C, 15B
20116	WDCMA Band 5&6 filter	WRCG832/83/-825/845-40/5SS	Wainwright	22, 15C, 15B
18323	Band reject filter 1947-1953MHz 40dB	WRCG1947/1953-1940/1960-40/6SS	Wainwright	22/24/27, 15C, 15B
20031	Double Ridged Broadband Horn	BBHA 9120 D	SCHWARZBECK	22/24/27, 15C, 15B
19966	Magnetic Loop Antenna 9 kHz - 30 MHz	HFH2-Z2	Rohde&Schwarz	15C, 15B
14993	EMI Test Receiver 9KHz-2750MHz	ESCS30	Rohde&Schwarz	22/24/27, 15C, 15B
15191	Turntable Contoller Unit	G-800SDX	YAESU	22/24/27, 15C, 15B
14900	Antenna Controller	HD100	HD GmbH	22/24/27, 15C, 15B
19374	Resonant Dipole Antenna 850MHz SMA m Conn.	-----	NMP Cph	22/24/27, 15C, 15B
19375	Resonant Dipole Antenna 1900MHz SMA m Conn.	-----	NMP Cph	22/24/27, 15C, 15B
20168	Bluetooth EDR Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B