

FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-627_13.doc	Date of Report:	16-Apr-2010
Number of pages:	13	Customer's Contact person:	Mohammad El-haj
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FCC listing no.:	99059		
IC recognition no.:	661AL-1		
Tested devices/ accessories:	Phone RM-627 / Battery BL-5F / AC-Charger AC-6E / Headset WH-102		
FCC ID:	QTKRM-627	IC:	661AD-RM627
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 5, February 2009) 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:			

Ruben Hansen, System Manager, EMC

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	11-Mar-2010
Testing completed	16-Apr-2010
The customer's contact person	Mohammad El-haj
Test Plan referred to	T:\Projects\RM-627\TestPlan\RS_testplan_RM-627.xls
Notes	None
Document name	FCC15B_RM-627_13.doc

1.1. EUT and Accessory Information

The EUT is a 7-band (GSM850/900/1800/1900 and WCDMA Band I/II(1900)/VIII) mobile phone with GPRS, EGPRS, Bluetooth and WLAN. GSM and WCDMA bands are tested in idle mode. Bluetooth and WLAN are tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-627	004402130270147	0200A	-	041.005RD	24398
Phone	RM-627	004402130275708	0200A	-	041.005RD	24402
Battery	BL-5F	3635639366311608752;0670498	-	-	-	24373
Headset	WH-102	0694786945311R00533	-	-	-	24383
Battery	BL-5F	3635639366311608757;0670498	-	-	-	24368
AC-Charger	AC-6E	3943499401141210126;0675590	-	-	-	24384
Headset	WH-102	0694786945311R00419	-	-	-	24377

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	NP
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

WLAN:

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

Bluetooth:

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

PASSED

The EUT complies with the essential requirements in the standard.

FAILED
NP

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

CONTENTS

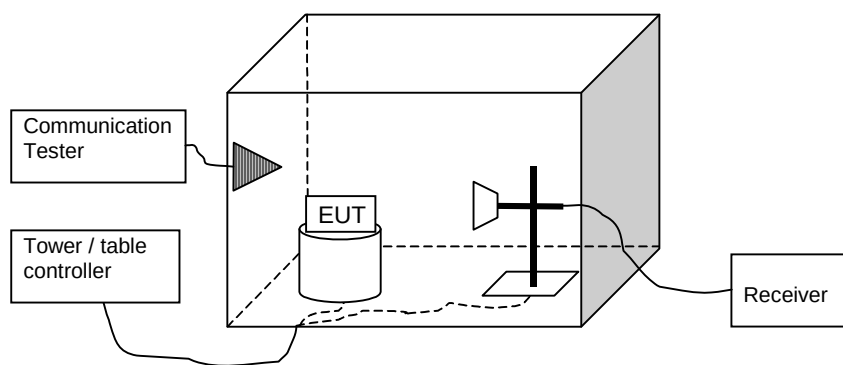
1. Summary for FCC Part 15B Compliance Test Report.....	2
1.1. EUT and Accessory Information	2
1.2. Summary of Test Results	2
Radiated emissions	
(FCC §15.109, ICES-003 section 5.5, RSS-132 4.6, RSS-133 6.6)	5
1.3. Test setup	5
1.4. Test method and limit.....	5
1.5. GSM 850 Test results	6
1.6. GSM 1900 Test results	7
1.7. WLAN Test results	8
2. AC powerline conducted emissions (FCC §15.207, RSS-GEN 7.2.2)	10
2.1. Test method and limit.....	10
2.2. Bluetooth Test results	11
3. Test Equipment.....	12
3.1. Conducted measurements	12
3.2. Radiated measurements	12

Radiated emissions

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

EUT with DUT number	RM-627, DUT 24398
Accessories with DUT numbers	BL-5F, DUT 24368 ; AC-6E, DUT 24384 ; WH-102, DUT 24377
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	WLAN tested with FM-Radio receiver active.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 38 / 100.1
Date of measurements	30-Mar-2010
Measured by	Christian Andersen

1.3. Test setup



1.4. 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:

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

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

1.5. 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	33.90	49.55	38.60	-4.7	HORIZONTAL	Passed
6953.600000	45.80	194.98	38.30	7.5	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3476.800000	21.20	11.48	25.90	-4.7	HORIZONTAL	Passed
6953.600000	32.70	43.15	25.20	7.5	HORIZONTAL	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
38.597796	28.70	27.23	39.60	-10.9	VERTICAL	Passed
47.633667	26.20	20.42	43.20	-17.0	HORIZONTAL	Passed
73.105611	26.20	20.42	46.00	-19.8	VERTICAL	Passed
881.663527	58.4	831.76	64.90	-6.5	VERTICAL	Passed

*881.0 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
1763.027054	36.30	65.31	35.70	0.6	VERTICAL	Passed
2983.967936	39.60	95.50	29.00	10.6	VERTICAL	Passed

RX mode, channel 251 / 893.8 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3575.200000	34.20	51.29	38.20	-4.0	HORIZONTAL	Passed
7150.400000	42.00	125.89	33.30	8.7	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3575.200000	21.70	12.16	25.70	-4.0	HORIZONTAL	Passed
7150.400000	28.70	27.23	20.00	8.7	HORIZONTAL	Passed

1.6. GSM 1900 Test results

RX mode, channel 512 / 1930.2 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3860.000000	35.10	56.89	38.40	-3.3	VERTICAL	Passed
7720.000000	42.40	131.83	32.90	9.5	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3860.000000	22.90	13.96	26.20	-3.3	HORIZONTAL	Passed
7720.000000	29.60	30.20	20.10	9.5	HORIZONTAL	Passed

RX mode, channel 661 / 1960.0 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
33.166733	21.60	12.02	28.90	-7.3	VERTICAL	Passed
38.776353	29.40	29.51	40.40	-11.0	VERTICAL	Passed
73.446092	26.20	20.42	46.00	-19.8	VERTICAL	Passed
95.872745	23.00	14.13	41.30	-18.3	HORIZONTAL	Passed
110.099198	21.20	11.48	39.10	-17.9	VERTICAL	Passed

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1959.919840	70.10	3198.90	69.00	1.1	VERTICAL	Passed
3525.050100	34.50	53.09	39.00	-4.5	HORIZONTAL	Passed
7844.689379	43.40	147.91	32.80	10.6	HORIZONTAL	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
1959.919840	69.30	2917.43	68.20	1.1	VERTICAL	Passed
2979.463928	39.40	93.33	28.90	10.5	VERTICAL	Passed
3527.050100	21.80	12.30	26.30	-4.5	HORIZONTAL	Passed
7843.689379	30.80	34.67	20.20	10.6	HORIZONTAL	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	35.50	59.57	38.50	-3.0	HORIZONTAL	Passed
7960.000000	43.80	154.88	33.00	10.8	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3980.000000	23.00	14.13	26.00	-3.0	HORIZONTAL	Passed
7960.000000	30.30	32.73	19.50	10.8	HORIZONTAL	Passed

1.7. WLAN Test results

TX mode, channel 1 / 2412 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	43.50	149.62	44.10	-0.6	HORIZONTAL	Passed
7236.000000	41.20	114.82	32.90	8.3	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	30.50	33.50	31.10	-0.6	HORIZONTAL	Passed
7236.000000	28.90	27.86	20.60	8.3	VERTICAL	Passed

TX mode, channel 7 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
38.135872	30.30	32.73	46.80	-16.5	VERTICAL	Passed
73.627054	28.20	25.70	53.90	-25.7	HORIZONTAL	Passed
74.169940	27.00	22.39	52.60	-25.6	HORIZONTAL	Passed
97.956112	62.70	1364.58	80.80	-18.1	VERTICAL	Passed
112.625451	21.60	12.02	45.20	-23.6	HORIZONTAL	Passed

*98.0 MHz frequency is coming from FM-Radio tester and thus ignored.

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.769539	42.00	125.89	42.20	-0.2	HORIZONTAL	Passed
7329.155311	43.00	141.25	34.00	9.0	HORIZONTAL	Passed
7343.679359	42.50	133.35	32.80	9.7	HORIZONTAL	Passed
7437.873747	42.80	138.04	33.30	9.5	VERTICAL	Passed
17471.447896	52.90	441.57	29.30	23.6	VERTICAL	Passed
17990.477956	58.40	831.76	28.70	29.7	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4884.269539	29.10	28.51	29.30	-0.2	HORIZONTAL	Passed
7330.655311	30.10	31.99	21.10	9.0	HORIZONTAL	Passed
7343.179359	29.60	30.20	20.00	9.6	HORIZONTAL	Passed
7435.873747	29.70	30.55	20.20	9.5	VERTICAL	Passed
17474.447896	39.90	98.86	16.20	23.7	VERTICAL	Passed
17990.977956	45.40	186.21	15.70	29.7	HORIZONTAL	Passed

TX mode, channel 11 / 2462 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	42.00	125.89	42.00	0.0	HORIZONTAL	Passed
7386.000000	44.90	175.79	34.70	10.2	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	28.90	27.86	28.90	0.0	HORIZONTAL	Passed
7386.000000	31.50	37.58	21.30	10.2	VERTICAL	Passed

2. AC powerline conducted emissions (FCC §15.207, RSS-GEN 7.2.2)

EUT with DUT number	RM-627 DUT 24402
Accessories with DUT numbers	BL-5F DUT 24373, AC-6E DUT 24384, WH-102 DUT 24383
Operation Voltage [V] / [Hz]	115 / 60
Result	Passed
Remarks	none
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 41 / 102
Date of measurements	25-Mar-2010
Measured by	Bo Moltved Christiansen

2.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-GEN 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.

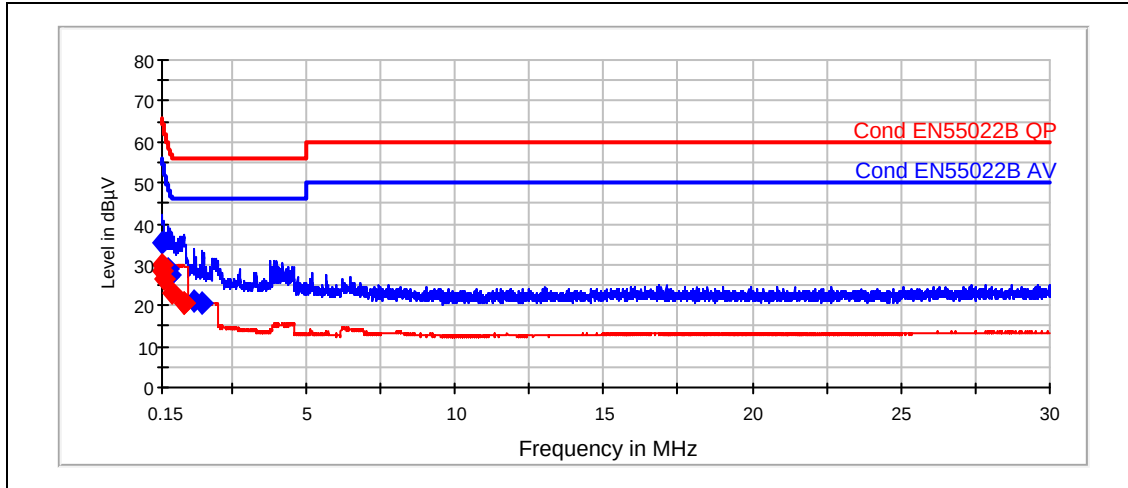
CISPR 22 Class B limits

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

2.2. Bluetooth Test results

2.2.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak

Frequency[MHz]	Level [dBμV]	Meas. time[ms]	IF-BW[kHz]	Line	Margin	Result
0.175	35.49	20000	10	L1	29.22	Passed
0.345	29.18	20000	10	L1	29.88	Passed
0.36	26.87	20000	10	N	31.83	Passed
0.44	27.29	20000	10	L1	29.76	Passed
1.255	21.22	20000	10	L1	34.8	Passed
1.52	20.55	20000	10	L1	35.4	Passed

Average

Frequency[MHz]	Level [dBμV]	Meas. time[ms]	IF-BW[kHz]	Line	Margin	Result
0.15	29.95	20000	10	L1	26	Passed
0.175	28.6	20000	10	L1	26.12	Passed
0.23	26.32	20000	10	L1	26.15	Passed
0.52	22.86	20000	10	L1	23.1	Passed
0.87	20.51	20000	10	L1	25.5	Passed
0.885	20.43	20000	10	L1	25.6	Passed

3. Test Equipment

3.1. 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

3.2. 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