

## FCC Part 15B Compliance Test Report

<b>Test Report no.:</b>	FCC15B_RM-1127_02.docx	<b>Date of Report:</b>	08-Oct-2015
<b>Number of pages:</b>	12	<b>Customer's Contact person:</b>	Tero Huhtala
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<b>FCC listing no.:</b>	975940		
<b>IC recognition no.:</b>	661AH-1		
<b>Tested devices/ accessories:</b>	<b>Phone RM-1127 / Cover CC-3097 / Battery Samsung BL-T5A / Headset WH-108 / Data USB Cable CA-190CD / Laptop IBM T43 / Printer HP C6427A / AC-Adapter 02K6749</b>		
<b>FCC ID:</b>	PYARM-1127	<b>IC:</b>	
<b>Supplement reports:</b>	-		
<b>Testing has been carried out in accordance with:</b>	<b>CFR 47, FCC rules Part 15 Subpart B, ANSI C63.4 (2014), CISPR 22 and IC standards, RSS-GEN (Issue 4, November 2014), RSS-133 (Issue 6, January 2013). Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".</b>		
<b>Documentation:</b>	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 Microsoft.		
<b>Test Results:</b>	<b>The EUT complies with the requirements in respect of all parameters subject to the test.</b> The test results relate only to devices specified in this document		
<b>Date and signature for the contents:</b>			

Timo Raiskio, System Manager, EMC

## 1. Summary for FCC Part 15B Compliance Test Report

<b>Date of receipt</b>	15-Jun-2015
<b>Testing completed</b>	06-Aug-2015
<b>The customer's contact person</b>	Tero Huhtala
<b>Test Plan referred to</b>	T:\Projects\RM-1127\TestPlan\RS_testplan_RM-1127_EMC_FCC.xlsm
<b>Notes</b>	-
<b>Document name</b>	FCC15B_RM-1127_02.docx

### 1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:

GSM/WCDMA/WLAN/Bluetooth

The EUT is tested with maximum rated TX power.

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-1127	004402742167830	1500	-	01065.00000.15265.37000	500106
Cover	CC-3097	-	-	-	-	500129
Battery	Samsung BL-T5A	5241525213V10200110;0670778	PWB Ver.1.1	-	-	500114
Headset	WH-108	-	-	-	-	500121
Data USB Cable	CA-190CD	07306604474DM10000351	-	-	-	54847
Laptop	IBM T43	L3KXHL3	FCC DoC	-	-	52468
Printer	HP C6427A	MY15B18156JJ	FCC DoC	-	-	51838
AC-Adapter	02K6749	-	-	-	-	53509

### 1.2. Summary of Test Results

**GSM 1900:**

Section in CFR 47	Section in RSS-GEN	Name of the test	Result
15.107, a	8.8	AC powerline conducted emissions	PASSED
15.109, a	6.1	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 Microsoft Laboratory.

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## 2. AC powerline conducted emissions (FCC §15.107, a, RSS-GEN, section 8.8)

<b>EUT with DUT number</b>	RM-1127, DUT 500106
<b>Accessories with DUT numbers</b>	CC-3097, DUT 500129 ; Samsung BL-T5A, DUT 500114; WH-108, DUT 500121 ; CA-190CD , DUT54847 ; IBM T43, DUT 52468 ; HP C6427A, DUT 51838 ; 02K6749, DUT 53509
<b>Operation Voltage [V] / [Hz]</b>	115 / 60
<b>Results</b>	PASSED
<b>Remarks</b>	*Continuous data transfer was active between the phone and the computer during the test. USB I/O cable used to connect the EUT to the host PC is shielded.
<b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b>	22 / 64 / 100.8
<b>Date of measurements</b>	10-Aug-2015
<b>Measured by</b>	Dou Rubo

### 2.1. Test Setup



### 2.2. Test method and limit

The measurement is made according to ANSI C63.4-2014 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:

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

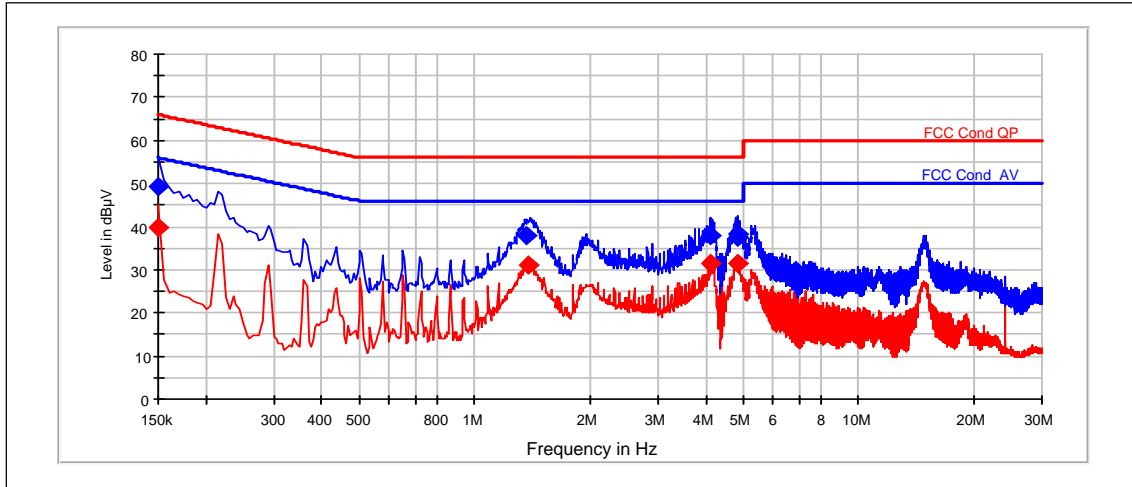
Where  $U_{RX}$  is receiver reading and  $A_{TOT}$  is total correction factor including cable and pulse limiter attenuations.

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 1900 Test results

Channel 661 / 1880.0 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.15	49.36	N	PASSED
1.37	37.88	L1	PASSED
4.115	38.01	N	PASSED
4.835	38.17	N	PASSED
4.84	37.71	N	PASSED

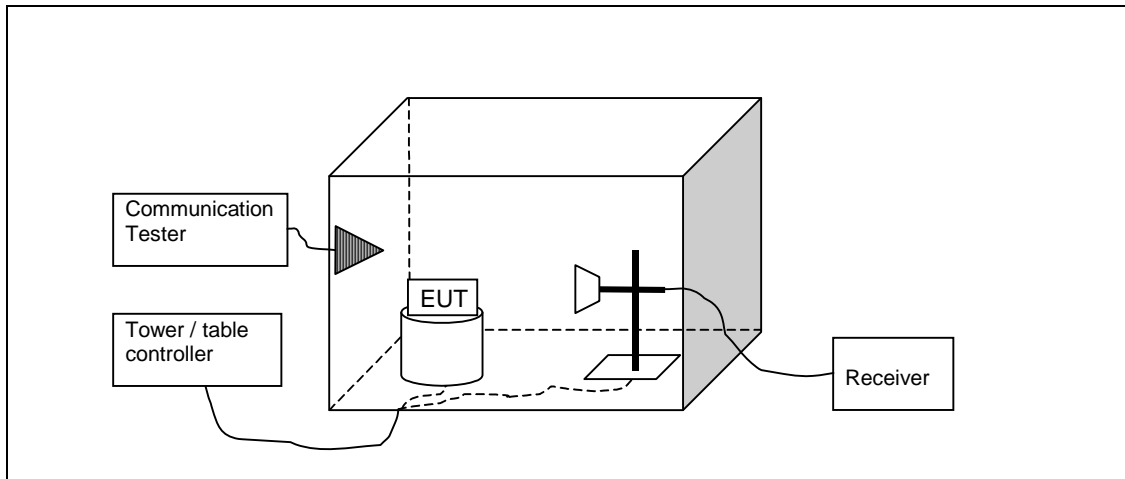
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.15	39.82	N	PASSED
1.375	31.25	L1	PASSED
4.115	31.64	N	PASSED
4.84	31.49	L1	PASSED

### 3. Radiated emissions (FCC 15.109, a, RSS-133 6.1)

<b>EUT with DUT number</b>	RM-1127, DUT 500106
<b>Accessories with DUT numbers</b>	CC-3097, DUT 500129 ; Samsung BL-T5A, DUT 500114; WH-108, DUT 500121 ; CA-190CD , DUT54847 ; IBM T43, DUT 52468 ; HP C6427A, DUT 51838 ; 02K6749, DUT 53509
<b>Operation Voltage [V] / [Hz]</b>	115 / 60
<b>Results</b>	PASSED
<b>Remarks</b>	*Continuous data transfer was active between the phone and the computer during the test. USB I/O cable used to connect the EUT to the host PC is shielded.
<b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b>	21 / 65 / 100.5
<b>Date of measurements</b>	06-Aug-2015
<b>Measured by</b>	Dou Rubo

#### 3.1.1 Test setup



#### 3.2. Test method and limit

The measurement is made according to ANSI C63.4-2014as 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:

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

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

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

Frequency range [MHz]	Quasi peak limit [dB $\mu$ V/m]	Average limit [dB $\mu$ V/m]	Peak limit [dB $\mu$ V/m]
30 - 230	40	-	-
230 - 1000	47	-	-
1000 - 3000	-	50	70
Above 3000	-	54	74

### 3.3. GSM 1900 test results

The examined frequency range was 30MHz – 8GHz

RX mode, channel 512 / 1930.2 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U <sub>RX</sub> [dBμV]	A <sub>TOT</sub> [dB]	Limit [dBμV/m]	Margin	Results
3859.6	40.88	110.662	41.18	-0.3	74	33.12	PASSED
7718.4	49.97	315.137	39.37	10.6	74	24.03	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U <sub>RX</sub> [dBμV]	A <sub>TOT</sub> [dB]	Limit [dBμV/m]	Margin	Results
3859.6	28.21	25.734	28.51	-0.3	54	25.79	PASSED
7718.4	36.27	65.088	25.67	10.6	54	17.73	PASSED

RX mode, channel 661 / 1960.0 MHz

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U <sub>RX</sub> [dBμV]	A <sub>TOT</sub> [dB]	Limit [dBμV/m]	Margin	Results
47.675	20.31	10.363	43.01	-22.7	40	19.69	PASSED
100.067	30.41	33.151	54.21	-23.8	40	9.59	PASSED
107.445	32.55	42.413	55.95	-23.4	40	7.45	PASSED
126.663	32.72	43.251	56.32	-23.6	40	7.28	PASSED
149.9	18.46	8.375	43.56	-25.1	40	21.54	PASSED
171.553	24	15.849	48.8	-24.8	40	16	PASSED
200.25	29.16	28.708	53.26	-24.1	40	10.84	PASSED
213.866	37.68	76.56	61.28	-23.6	40	2.32	PASSED
300.01	27.57	23.906	47.87	-20.3	47	19.43	PASSED
798.354	30.75	34.475	41.75	-11	47	16.25	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U <sub>RX</sub> [dBμV]	A <sub>TOT</sub> [dB]	Limit [dBμV/m]	Margin	Results
3918.9	40.87	110.535	41.17	-0.3	74	33.13	PASSED
7829.257	50.72	343.558	39.72	11	74	23.28	PASSED
7835.769	50.23	324.713	39.23	11	74	23.77	PASSED
7839.4	50.22	324.34	39.22	11	74	23.78	PASSED
7846.096	50.05	318.053	39.05	11	74	23.95	PASSED
7856.615	50.13	320.996	39.13	11	74	23.87	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U <sub>RX</sub> [dBμV]	A <sub>TOT</sub> [dB]	Limit [dBμV/m]	Margin	Results
3918.9	27.85	24.689	28.15	-0.3	54	26.15	PASSED
7829.257	36.81	69.263	25.81	11	54	17.19	PASSED
7835.769	36.86	69.663	25.86	11	54	17.14	PASSED
7839.4	36.86	69.663	25.86	11	54	17.14	PASSED
7846.096	36.83	69.422	25.83	11	54	17.17	PASSED
7856.615	36.98	70.632	25.98	11	54	17.02	PASSED



RX mode, channel 810 / 1989.8 MHz

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

Frequency [MHz]	E [dB $\mu$ V/m]	E [ $\mu$ V/m]	U <sub>RX</sub> [dB $\mu$ V]	A <sub>TOT</sub> [dB]	Limit [dB $\mu$ V/m]	Margin	Results
3981.2	41.07	113.11	41.17	-0.1	74	32.93	PASSED
7958.3	51.02	355.631	39.52	11.5	74	22.98	PASSED

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

Frequency [MHz]	E [dB $\mu$ V/m]	E [ $\mu$ V/m]	U <sub>RX</sub> [dB $\mu$ V]	A <sub>TOT</sub> [dB]	Limit [dB $\mu$ V/m]	Margin	Results
3981.2	27.7	24.266	27.8	-0.1	54	26.3	PASSED
7958.3	37.1	71.614	25.6	11.5	54	16.9	PASSED

## 4. Test Equipment

### 4.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	RF Emission Software	EMC32 Test Software	R&S	22/24/27, 15C, 15B
BJPCHW0020	DC Power supply	Hp6632B	HP	22/24/27, 15C
BJPCPT0040	Receiver	ESCS30	R&S	15C,15B
BJPCPT0069	LISN 50 μH	ESH3-Z5	R&S	15C,15B
BJPCTC0323	Signal Generator	SMR 27	R&S	22/24/27, 15C, 15B
BJPCPT0073	Signal Generator	SMR 20	R&S	22/24/27, 15C, 15B
BJPCPT0191	Pulse Limiter	ESH3-Z2	R&S	15C,15B
BJPCPT0208	UPS	PULSAR RX10	Merlin gerin	15C.15B
BJPCTC0001	DIGITAL CAMERA	PC1015	CANON	15C.15R
BJPCTC0017	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0062	AC Power source	6812B	Hp	15C.15B
BJPCTC0067	Bluetooth Tester	CBT	R&S	22/24/27, 15C
BJPCTC0082	Humidity and Temperature Sensor	175-H2	Testo	15B,15C
BJPCTC0088	Absolut pressure meter	testo 511	Testo	22/24/27, 15B,15C
BJPCTC0089	Tempreture Test chamber	VT4002	Votsch industrietechnik	22/24/27, 15C
BJPCTC0090	FSP spectrum analyzer	FSP30	R&S	22/24/27, 15C
BJPCTC0094	GPIB-RS232 convertor	GPIB-RS232	NI	22/24/27, 15C
BJPCTC0112	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0127	AC Power source	SOYI-500VA	SOYI	15B 15C
BJPCTC0128	Communication antenna	JTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0129	Communication antenna	JTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0131	Communication tester	CMW500	R&S	22/24/27 15B 15C
BJPCTC0136	Communication antenna	JTXLB-880-NF	A-INFOMW	15B 15C
BJPCTC0306	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0305	GPIB converter	GPIB-RS232	NI	22/24/27, 15C
BJPCTC0304	Spectrum Analyser	FSV30	R&S	22/24/27, 15C
BJPCTC0309	GPIB-RS232 convertor	RS232	NI	22/24/27, 15C
BJPCTC0307	Dual channel battery/charger simulator	2306	KEITHLEY	22/24/27, 15C
BJPCTC0308	Dual channel battery/charger simulator	2306	KEITHLEY	22/24/27, 15C
BJPCTC0352	Signal Generator 20GHz	MG3692B	Anritsu	22/24/27, 15C
BJBDATC0169	Tempreture Test chamber	VT4002	Votsch	22/24/27, 15C
BJPCTC0334	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0342	Communication Tester	CMU200	R&S	15B, 15C
BJPCTC0343	Power Splitter	1167A	Agilent	EN300328
BJPCTC0344	Power Splitter	1167A	Agilent	EN300328
BJPCTC0345	Power Splitter	1167A	Agilent	EN300328
BJPCTC0346	Attenuator	8496A	Agilent	EN300328
BJPCTC0347	Directional Coupler	4226-20	Narda	EN300328
BJPCTC0348	Signal generator	E4438C	Agilent	EN300328
BJPCTC0336	Signal Generator	SMP22	R&S	22/24/27, 15C
BJPCTC0357	Signal Generator	SMB100A	R&S	-

### 4.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	RF Emission Software	EMC32 Test Software	R&S	22/24/27, 15C, 15B
BJPCPT0072	Receiver	ESIB26	R&S	22/24/27, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
BJPCPT0150	High Pass Filter	WHKS1200-10SS	Wainwright	22/24/27, 15C, 15B
BJPCPT0151	Band Reject Filter	WRCD1880/2000-0.2/40-5SSK	Wainwright	24, 15B
BJPCPT0154	Band Reject Filter	WRCT2402/2480-2400/2483.5-30-20SS	Wainwright	15C, 15B
BJPCPT0166	Antenna	VUBA 9117	Swarzbeck	22/24/27
BJPCPT0208	UPS	PULSAR RX10	Merlin gerin	15C.15B
BJPCTC0001	DIGITAL CAMERA	PC1015	CANON	15C.15R
BJPCTC0007	Antenna	HL562	R&S	22/24/27, 15C, 15B
BJPCTC0029	Antenna	HF906	R&S	22/24/27, 15C, 15B
BJPCTC0034	Band Reject Filter	WRCT 800/880-0.2/40-5SSK	Wainwright	22, 15B
BJPCTC0049	Preamplifier	Bima 0118-1A-Bt	Bonn	22/24/27, 15C, 15B
BJPCTC0055	Communication Tester	CMU200	R&S	22/24/27,15C,15B
BJPCTC0058	Bluetooth Tester	CBT	R&S	15C, 15B
BJPCTC0062	AC Power source	6812B	Hp	15C.15B
BJPCTC0064	Band Reject Filter	WRCG1877/1883-1870/1890-40/6SS	Wainwright	24, 15B
BJPCTC0071	Multi-Device Controller	2090	EMCO	22/24/27, 15C, 15B
BJPCTC0072	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	ETS	22/24/27, 15C, 15B
BJPCTC0073	MAST	Model-TR/POL	ETS	22/24/27, 15C, 15B
BJPCTC0074	MAST	Model 2070-2	ETS	22/24/27, 15C, 15B
BJPCTC0075	Turntable	Model 2188	ETS-EMCO	22/24/27, 15C, 15B
BJPCTC0081	Humidity and Temperature Sensor	175-H2	Testo	15B, 15C
BJPCTC0088	Absolut pressure meter	testo 511	Testo	22/24/27, 15B,15C
BJPCTC0124	Attenuator	SA18N200W-40	Fairview Microwave	-
BJPCTC0125	Loop Antenna	HFH2-Z2	R&S	15C
BJPCTC0126	Tripod	FHU-Z	R&S	15C
BJPCTC0128	Communication antenna	JTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0129	Communication antenna	JTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0131	Communication tester	CMW500	R&S	22/24/27 15B 15C
BJPCTC0133	Open Swith and contril unit	OSP 150	R&S	15B,15C
BJPCTC0134	Open Swith and contril unit	OSP 150	R&S	15B,15C
BJPCTC0135	Open Swith and contril unit	OSP 130	R&S	15B,15C
BJPCTC0136	Communication antenna	JTXLB-880-NF	A-INFOMW	15B 15C
BJPCTC0171	Broad-band Horn Antenna	BBHA9120 D	SCHWARZBECK MESS - ELEKTRONIK	22/24/27, 15C, 15B
BJPCTC0310	Horn Antenna	QSH20SMA	Q-par	22/24/27, 15C, 15B
BJPCTC0311	Horn Antenna	QSH18SMA	Q-par	22/24/27, 15C, 15B
BJPCTC0312	Relay Switch Unit	-	-	22/24/27, 15C, 15B
BJPCTC0313	High Pass Filter	WHKX1.0/15G-12SS	Wainwright	22/24/27, 15C, 15B
BJPCTC0314	High Pass Filter	WHKX8.0/18G-88SS	Wainwright	22/24/27, 15C, 15B
BJPCTC0315	High Pass Filter	WHKX3.0/18G-12SS	Wainwright	22/24/27, 15C, 15B
BJPCTC0316	Preamplifier	AMT-5F-18002550-25-108	-	22/24/27, 15C, 15B
BJPCTC0317	Preamplifier	AMF-6D-02001800-29-20P	-	22/24/27, 15C, 15B
BJPCTC0350	Preamplifier	AMF-4D-01000800-30-29P	Miteq	22/24/27, 15C, 15B
BJPCTC0324	Preamplifier	AFS4-00100300-20-23P-6	Miteq	22/24/27, 15C, 15B
BJPCTC0329	Relay Switch Unit	-	-	22/24/27, 15C, 15B
BJPCTC0334	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0342	Communication Tester	CMU200	R&S	15B, 15C
BJPCTC0349	Preamplifier	AMF-4D-01000800-30-79P	Miteq	22/24/27, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
BJPCTC0350	Preamplifier	AMF-4D-01000800-30-29P	Miteg	22/24/27, 15C, 15B
BJPCTC0351	Preamplifier	AFS4-00101800	-	22/24/27, 15C, 15B
BJPCTC0113	Receiver	ESI B26	R&S	22/24/27, 15B, 15C