FCC Part 15E Compliance Test Report

Test Report no.:	FCC15E_RM-1116_25.docx	**Date of Report:**	21-Sep-2015
Number of pages:	16	**Customer's Contact person:**	Tia Melava
Testing laboratory:	TCC Microsoft Salo Laboratory P.O.Box(86) Joensuunkatu 7E FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 71 80 44122	**Customer:**	Microsoft P.O.Box(86) Joensuunkatu 7E FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 71 80 44122
FCC listing no.: **IC recognition no.:**	533467 661V-1		
Tested devices/ accessories:	**Phone RM-1116 / Dummy Battery SD-241R / Headset WH-308**		
FCC ID:	PYARM-1116	**IC:**	661X-RM1116
Supplement reports:	-		
Testing has been carried out in accordance with:	**CFR 47, FCC rules Part 15 Subpart E, ANSI C63.4 (2003), MO&O FCC 06-96, IC standards RSS-GEN (Issue 3, December 2010) and RSS-210 (Issue 8, December 2010). 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:	Hannu Söderholm 2015.09.21 14:21:54 +03'00'		

Hannu Söderholm, Engineer, EMC

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1. Summary for FCC Part 15E Compliance Test Report

Date of receipt	15-Jun-2015
Testing completed	27-Aug-2015
The customer's contact person	Tia Melava
Test Plan referred to	T:\Projects\RM-1045\TestPlan\RS_testplan_RM-1085.xlsm
Notes	-
Document name	T:\Projects\RM-1116\EMC\FCC15E_RM-1116_25.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-1085	004402742321478	2111	-	01066.00001.15273.52000	100014
Dummy Battery	SD-241R	-	V2	-	-	100017
Headset	WH-308	51251B1	-	-	-	100029

1.2. Summary of Test Results

RLAN 5 GHz:

Section in CFR 47	Section in *RSS-GEN* or RSS-210	Name of the test	Result
15.407 (h) (2) (iii)	A9.3 (b) (iii)	Dynamic frequency selection	PASSED

The test results of RM-1085 *are re-used for certification of the* RM-1116*. The table above indicates the results, which will be re-used.*

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

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3. Dynamic frequency selection

(FCC §15.407 (h) (2) (iii), RSS-210 A9.3 (b) (iii))

EUT with DUT number	RM-1085, DUT 100014
Accessories with DUT numbers	SD-241R, DUT 100017 ; WH-308, DUT 100029
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 46 / 100.8
Date of measurements	27-Aug-2015
Measured by	Jari Keto

3.1. EUT information

The EUT operates as a client and does not have radar detection capability. It operates on following channels:

5180 (36)
5200 (40)
5220 (44)
5240 (48)
5260 (52)
5280 (56)
5300 (60)
5320 (64)
5500 (100)
5520 (104)
5540 (108)
5560 (112)
5580 (116)
5680 (136)
5700 (140)
5745 (149)
5765 (153)
5785 (157)
5805 (161)
5825 (165)

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3.2. Test method and setup

The measurement was made according to the MO&O FCC 06-96.

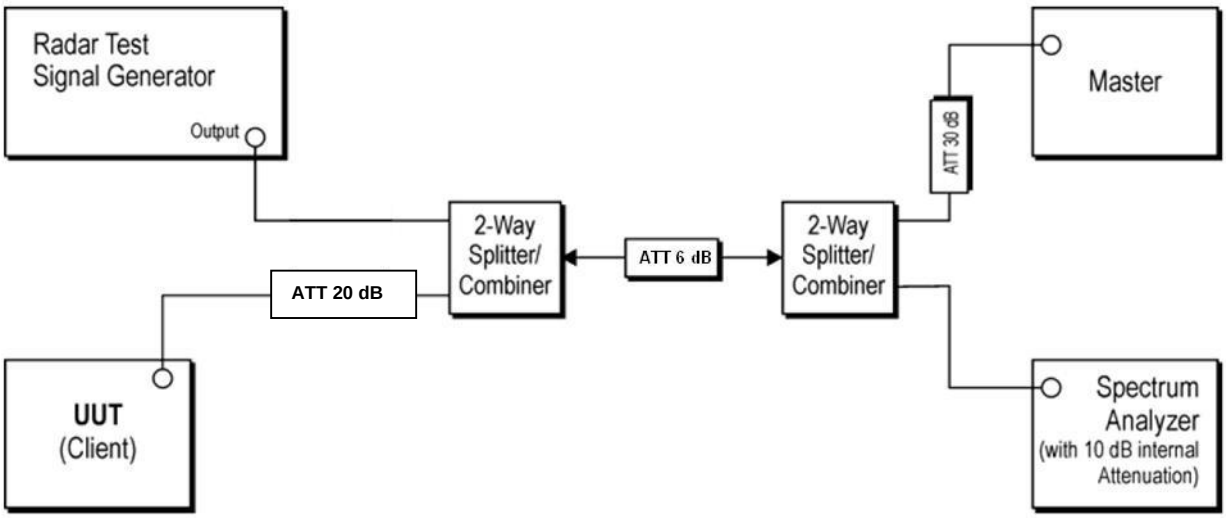
The master used was Cisco AIR-AP1262N-A-K9, FCCID: LDK102073. The 5 GHz B Rx-Tx antenna port was connected to the test setup, others were left unconnected.

The output power of the radar signal test generator was 15 dBm.

The radar signal generator was set to simulate radar type 4: pulse width 16 us, PRI 300 us and number of pulses 15.

There was traffic between the EUT and master by means of the commonly available 'iperf' tool. A PC was connected to the master via Ethernet to serve as a remote endpoint. Unlimited rate up-link (from EUT to the remote endpoint) TCP protocol data transfer was generated with the 'iperf' tool.

The test was repeated four times to record the four graphs, shown in section



3.3. Limit

Parameter	Limit
Channel move time	10 s
Transmission during channel move time	200+60 ms
Non-occupancy period	30 min

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3.4. Test results

In the graphs below, the signal levels are as follows: radar signal generator -15 dBm, EUT -25 dBm and master -35 dBm.

80 MHz CBW

Parameter	Value	Result
Channel move time	630 ms	PASS
Transmission during channel move time	< 15 ms	PASS
Non-occupancy period	> 30 min	PASS

20 MHz CBW

Parameter	Value	Result
Channel move time	651 ms	PASS
Transmission during channel move time	< 36 ms	PASS
Non-occupancy period	> 30 min	PASS

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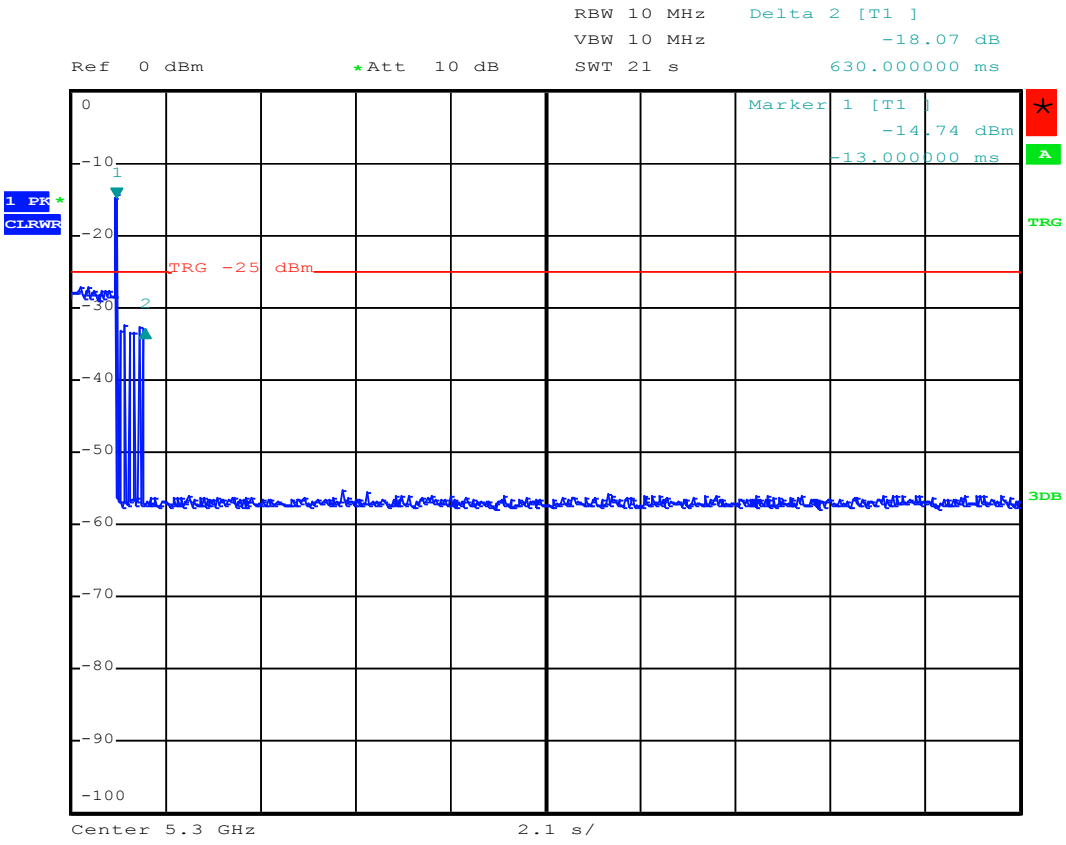
3.4.1 Channel move time



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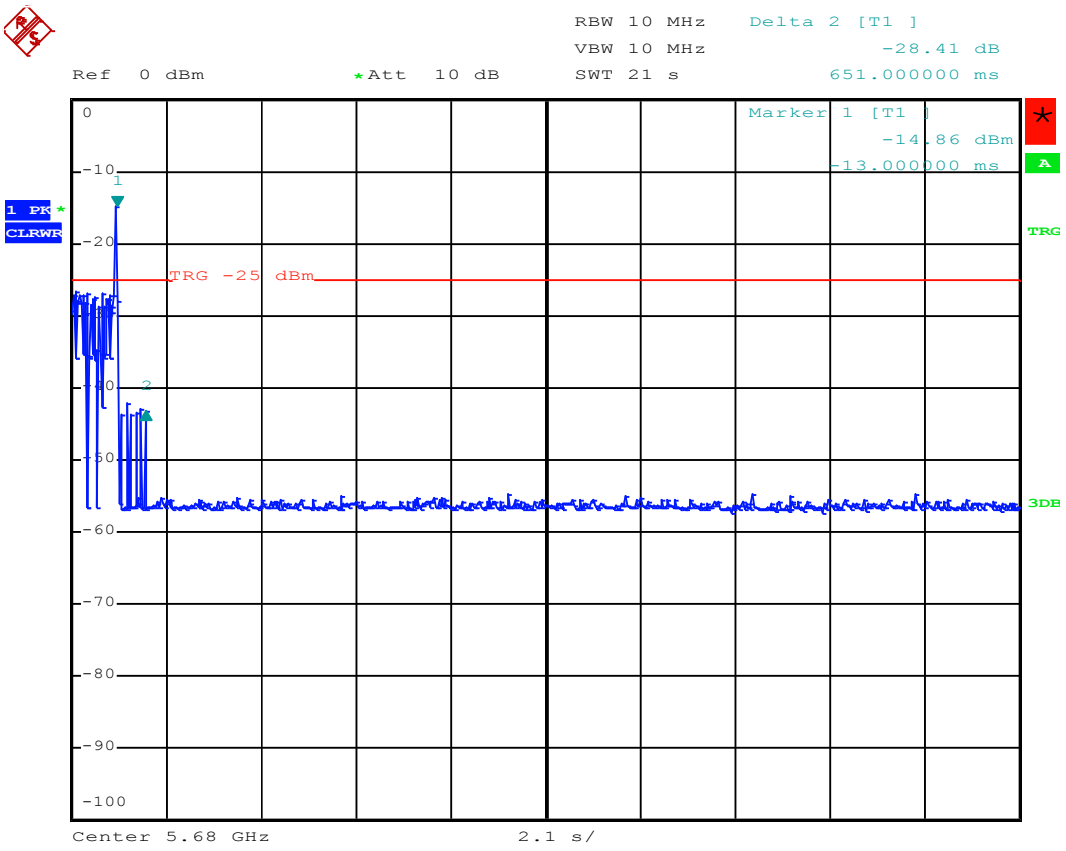

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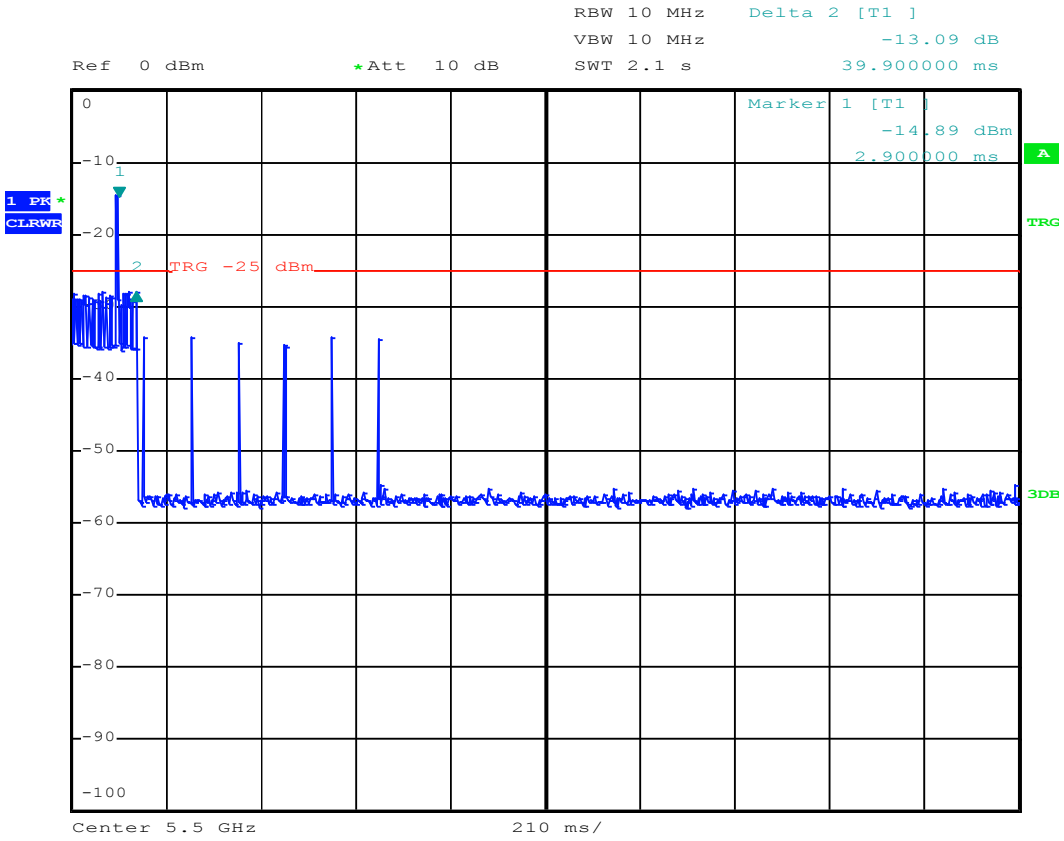

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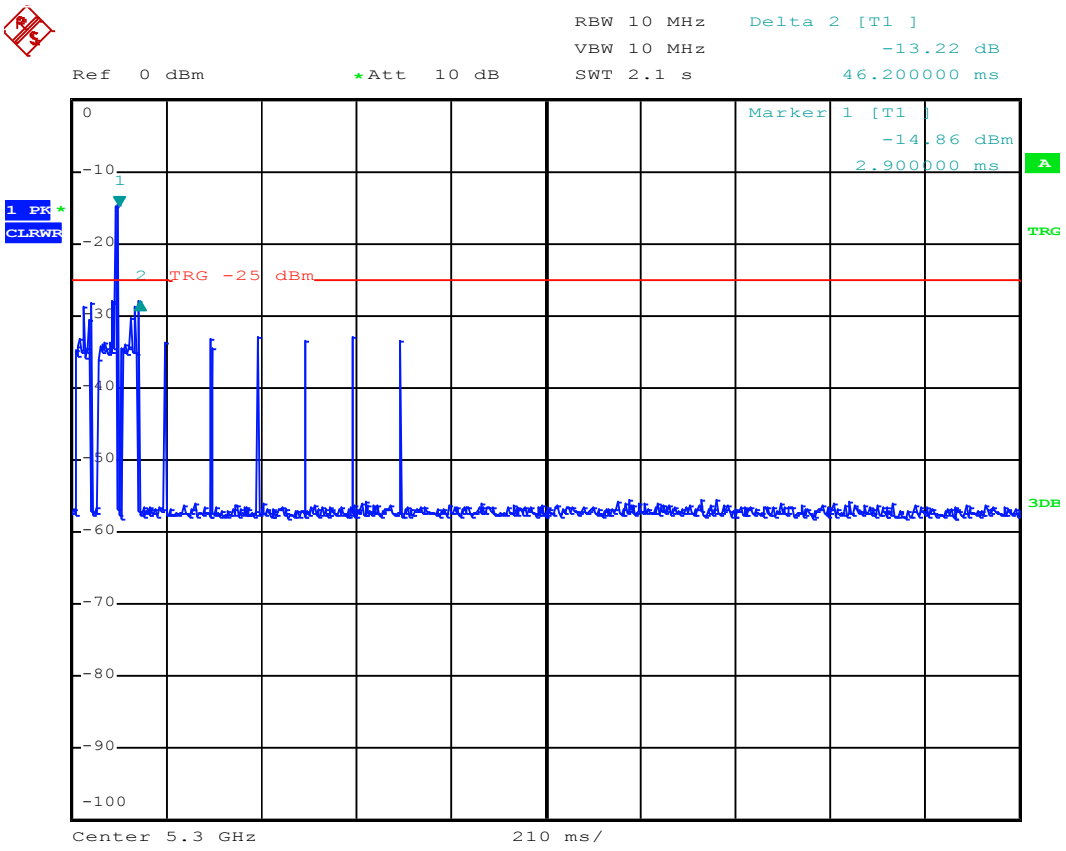

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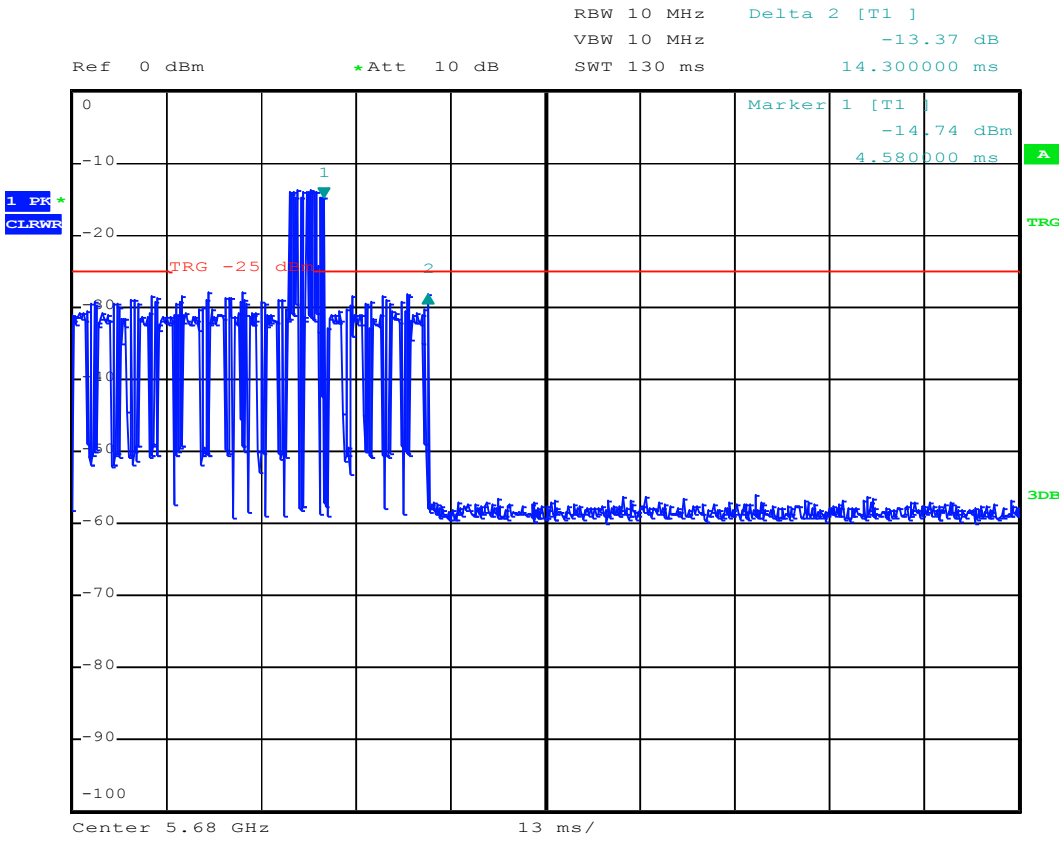
3.4.2 Transmission time



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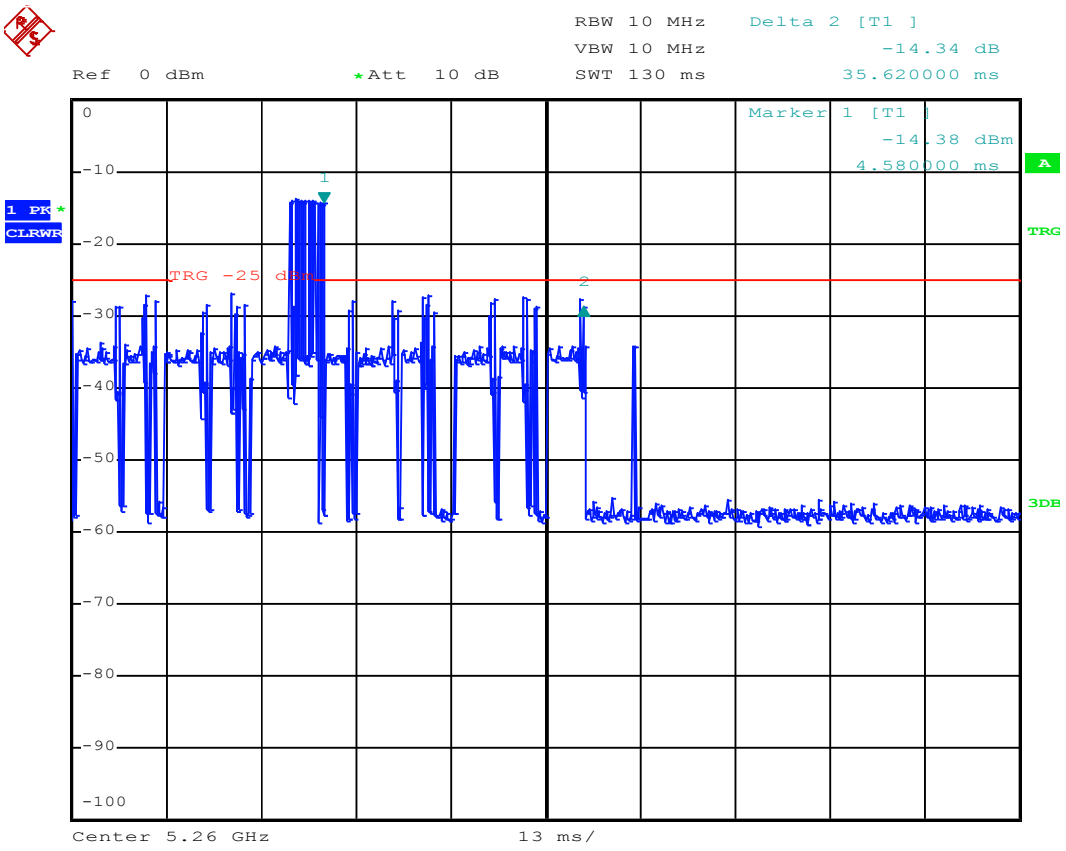

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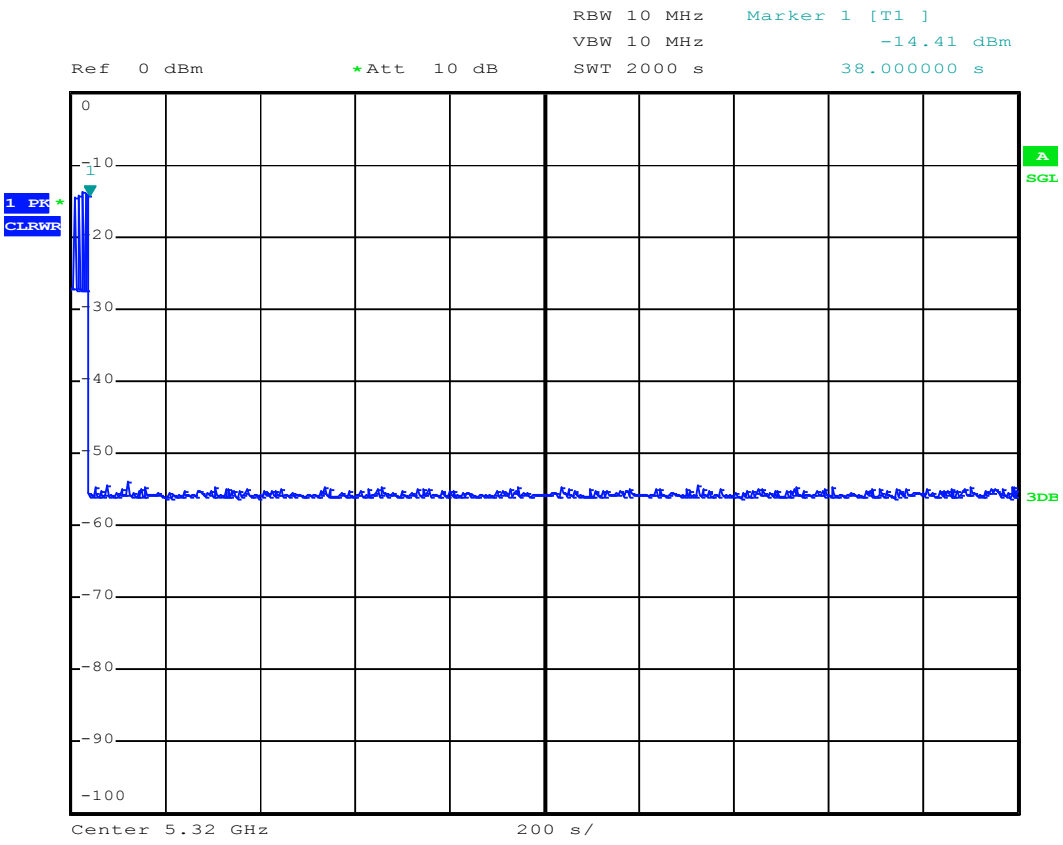
3.4.3 Non-occupancy period



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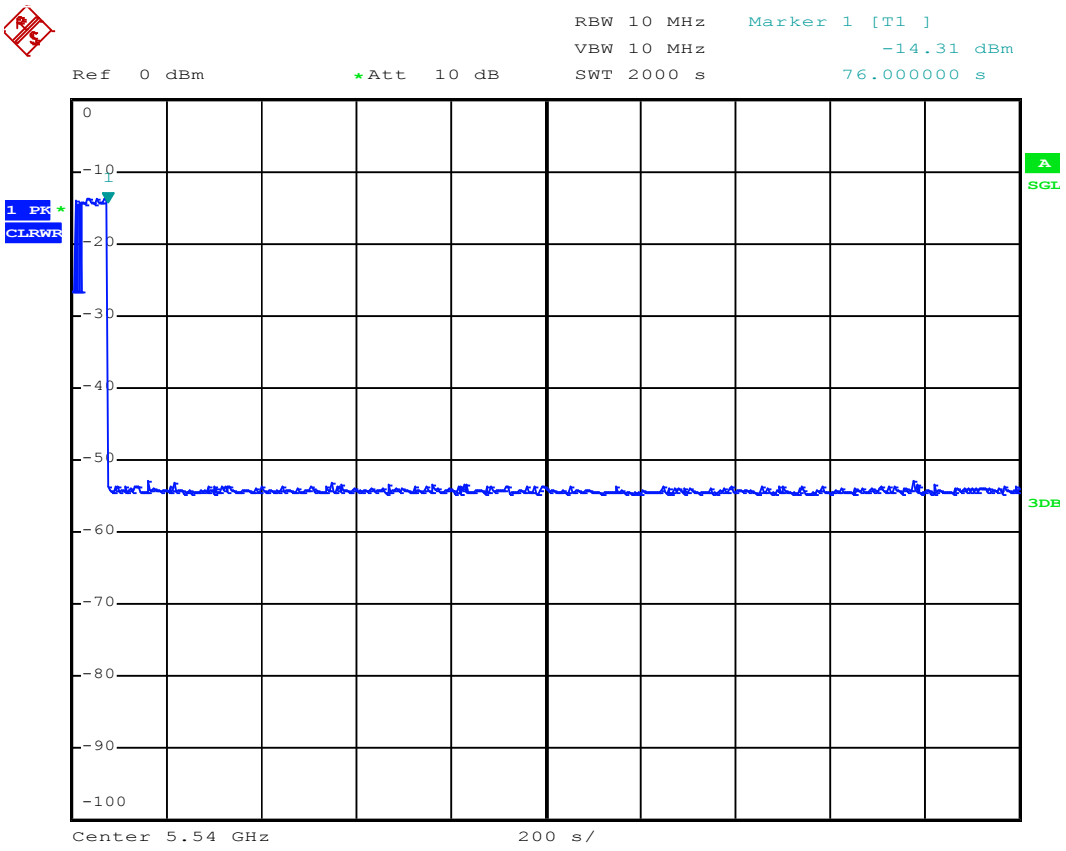

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4. Test Equipment

4.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM38112	Power supply	6632A	Agilent	22/24/27, 15C
TM38631	Signal Generator	83640L	Agilent	22/24/27, 15C, 15B
OM06312	Signal Generator	E4422B	Agilent	22/24
TM37678	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
TM37773	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
TM30600	Impulse limiter	ESH3-Z2	R&S	15C, 15B
TM26490	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
TM26491	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
TM37610	Spectrum Analyzer	FSU26	R&S	22/24/27, 15C
TM22806	Battery	BAT 20/E	Fiskars	15C, 15B
TM22805	UPS	PS 20/1.2	Fiskars	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	22/24/27, 15C
-	Air pressure and temperature logger	635-2	Testo	22/24/27, 15C, 15B
-	Air pressure sensor	0638-1835	Testo	22/24/27, 15C, 15B
-	Temperature test chamber	VT 4002	Vötsch	22/24
2058	Receiver	ESPC	R&S	15C, 15B
2001	Bluetooth tester	CBT	R&S	22/24/27, 15C, 15B
2002	Communication Tester	CMU200	R&S	22/24/27
2009	LISN 50 µH	ENV216	R&S	15C, 15B
2010	LISN 50 µH	ENV216	R&S	15C, 15B
2012	Power splitter	11667B	Agilent	22/24/27, 15C
2013	Attenuator	8493C	Agilent	22/24/27, 15C
2014	Attenuator	8493C	Agilent	22/24/27, 15C
2019	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
2020	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
TM120047	Signal Generator	E4438C	Agilent	15E
TM130056	Pulse/Pattern Generator	3401	Keithley	15E

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4.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM38114	Power supply	6632A	Agilent	22/24/27, 15C, 15B
TM38631	Signal Generator	83640L	Agilent	22/24/27, 15C, 15B
TM38323	Preamplifier	PA-02 18-26 GHz	EMC Automation	22/24/27, 15C, 15B
-	Antenna	BBHA 9120 D	Schwarzbeck	22/24/27, 15C
TM26497	Antenna	3115	Emco	22/24/27, 15C, 15B
TM37678	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
TM37773	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
TM38845	Receiver	ESIB 26	R&S	22/24/27, 15C, 15B
-	Antenna	HL562	R&S	22/24/27, 15C, 15B
TM26500	Turntable	DS412	Deisel	22/24/27, 15C, 15B
TM30642	Mast/turntable controller	HD-100	Deisel	22/24/27, 15C, 15B
TM38990	Remote switching module	RSM1	EMC Automation	22/24/27, 15C, 15B
TM38341	System interface	SI-300	EMC Automation	22/24/27, 15C, 15B
-	Mini mast	2075-2	ETS Lindgren	22/24/27, 15C, 15B
TM38843	Mini mast	2075	Emco	22/24/27, 15C, 15B
TM38842	Controller	2090	Emco	22/24/27, 15C, 15B
TM39158	Antenna	3116	Emco	22/24/27, 15C, 15B
TM30643	LISN 50 µH	LISN-5-20-2	FCC	22/24/27, 15C, 15B
TM30644	LISN 50 µH	LISN-5-20-2	FCC	22/24/27, 15C, 15B
-	Temperature and humidity logger	175-H2	Testo	22/24/27, 15C, 15B
-	Air pressure and temperature logger	635-2	Testo	22/24/27, 15C, 15B
-	Air pressure sensor	0638-1835	Testo	22/24/27, 15C, 15B
TM39180	Laser distance meter	Disto Pro	Leica	22/24/27, 15C, 15B
TM37523	Preamplifier	AMF-4D-10M-3G-25-20P	Miteq	22/24/27, 15C, 15B
-	Preamplifier	AFS4-00100300-20-23P6	Miteq	15C
TM37498	Preamplifier	AMF-5D-020180-26-10P	Miteq	22/24/27, 15C, 15B
TM30599	Semi anechoic chambre	UNKNOWN	TDK	22/24/27, 15C, 15B
TM22638	Power supply	OL63743-901	Torqueleader	22/24/27, 15C, 15B
TM38066	High pass filter	4HC3000/18000-3-KK	Trilithic	22/24/27, 15C, 15B
TM26511	Tunable notch filter	WRCA870/	Wainwright	27
TM38215	Band reject filter	WRCD 1920/1980-1918/1982-40/20	Wainwright UMTS	27
TM38214	Band reject filter	WRCT 2402/2480-2400/2483.5-30/	Wainwright ISM	15C
-	Band reject filter	WRCG1877/1883-1870/1890-40/6EE	Wainwright	27
-	Band reject filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
-	Band reject filter	WRCG832/838-825/848-40/5SS	Wainwright	27
TM23892	Controller	G-1000SDX	Yaesu	22/24/27
2001	Bluetooth tester	CBT	R&S	22/24/27, 15C, 15B
-	Antenna	SBA 9113	Schwarzbeck	22/24/27
6023	Antenna	VUBA 9117	Schwarzbeck	22/24/27, 15C

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