RFID 13,56MHz Template: Release October 10th, 2016

TEST REPORT

N°: 145064-694091F **Version : 01**

Subject	**Radio spectrum matters tests according to standards: 47 CFR Part 15.225**
Issued to	**SAGEMCOM BROADBAND SAS** 250 Route de l' Empereur 92500 – RUEIL MALMAISON FRANCE
Apparatus under test	
Product	DGCI384 UHD Alt US
Trade mark	**SAGEMCOM**
Manufacturer	**SAGEMCOM**
Model under test	**TheBox (253697282)**
Serial number	**616400107098**
FCC ID	**VW3DGCI384**
Test date	: November 24, 2016 & November 30, 2016
Test location	Fontenay Aux Roses & Ecuelles
Composition of document	35 pages
Document issued on	January 9, 2017

Written by :
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Approved by :
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PUBLICATION HISTORY

Version	Date	Author	Modification
01	January 6, 2017	Mathieu CERISIER	Creation of the document

SUMMARY

1. TEST PROGRAM

References

- **47 CFR Part 15.225**
- **ANSI C63.10-2013**

Radio requirement:

Clause (47CFR Part 15.225) Test Description	Test result - Comments			
Occupied Bandwidth	☐ **PASS**	☐ **FAIL**	☑ **NA**	☐ **NP(1)**
AC Power Line Conducted Emission	☑ **PASS**	☐ **FAIL**	☐ **NA(2)**	☐ **NP(1)**
Frequency Tolerance	☑ **PASS**	☐ **FAIL**	☐ **NA**	☐ **NP(1)**
Field strength within the band 13.110-14.010MHz	☑ **PASS**	☐ **FAIL**	☐ **NA**	☐ **NP(1)**
Field strength outside of the bands 13.110-14.010 MHz	☑ **PASS**	☐ **FAIL**	☐ **NA**	☐ **NP(1)**
Receiver Radiated Emissions	☑ **PASS (3)**	☐ **FAIL**	☐ **NA**	☐ **NP(1)**
This table is a summary of test report, see conclusion of each clause of this test report for detail.				

(1): Limited program
(2): EUT not directly or indirectly connected to the AC Power Public Network
(3)Testing covered the receive mode, and receiver spurious emissions are considered to be the same as transmitter.

PASS: EUT complies with standard's requirement
FAIL: EUT does not comply with standard's requirement
NA: Not Applicable
NP: Test Not Performed

2. EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER)

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):

SAGEMCOM TheBox (253697282) **Serial Number: 616400107098**

Equipment Under Test

Equipment Under Test

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
1	Power Supply	-	☐	☐	☑	-

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
Laptop	-	-	Use to set the EUT
Power supply°1	NBS60C120500M2	16366C25200017	P/N:191363252-xx
Power supply°2	LPL-C060120500ZS	1637215590020	P/N:191363559-XX
Power supply°3	MSA-Z5000IS12.0-60A-P	H16386E6950010	P/N:191363695-XX
Power supply°4	A15-060P1A	16413K72800092	P/N:191363728

Equipment information:

Type:	☑ **RFID**			
Frequency band:	[13.553 to 13.567] MHz			
Number of Channel:	1			
Antenna Type:	☑ Integral	☐ External	☐ Dedicated	
Transmit chains:	1			
Receiver chains	1			
Type of equipment:	☑ Stand-alone	☐ Plug-in	☐ Combined	
Equipment type:	☑ Production model	☐ Pre-production model		
Operating temperature range:	Tmin:	☐ -30°C IC ☑ -20°C FCC	☐ 0°C	☐ X°C
	Tnom:	20°C		
	Tmax:	☐ 35°C	☑ 50°C	☐ X°C
Type of power source:	☑ AC power supply	☐ DC power supply	☐ Battery	
Operating voltage range:	Vmin:	☑ 102V/60Hz	☐ XVdc	
	Vnom:	☑ 120V/60Hz	☐ XVdc	
	Vmax:	☑ 138V/60Hz	☐ XVdc	

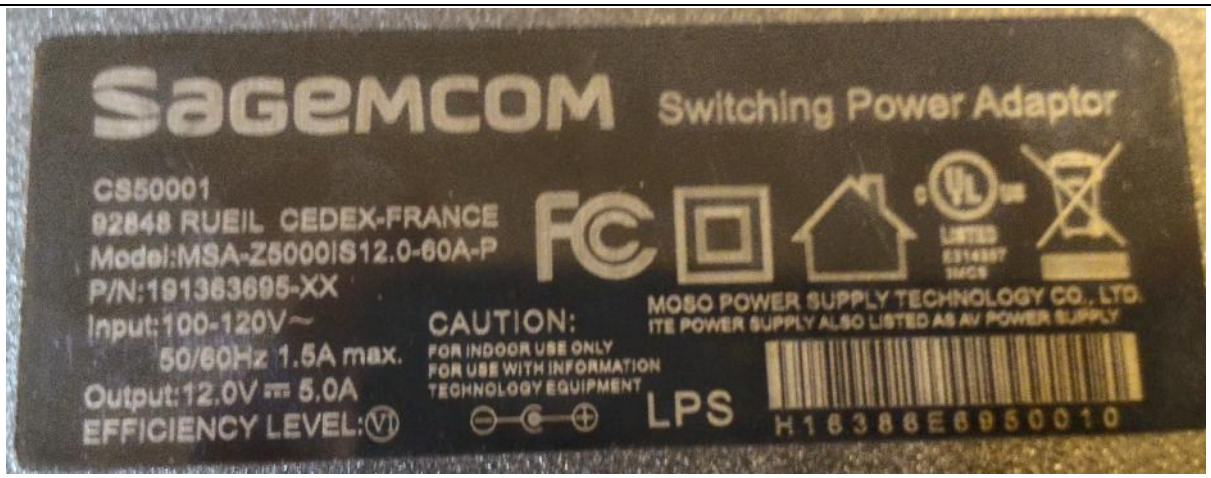
2.2. RUNNING MODE

The EUT is set in the following modes during tests:
- Permanent emission with modulation on a fixed channel in the data rate that produced the highest power
- Permanent reception

2.3. EQUIPMENT LABELLING

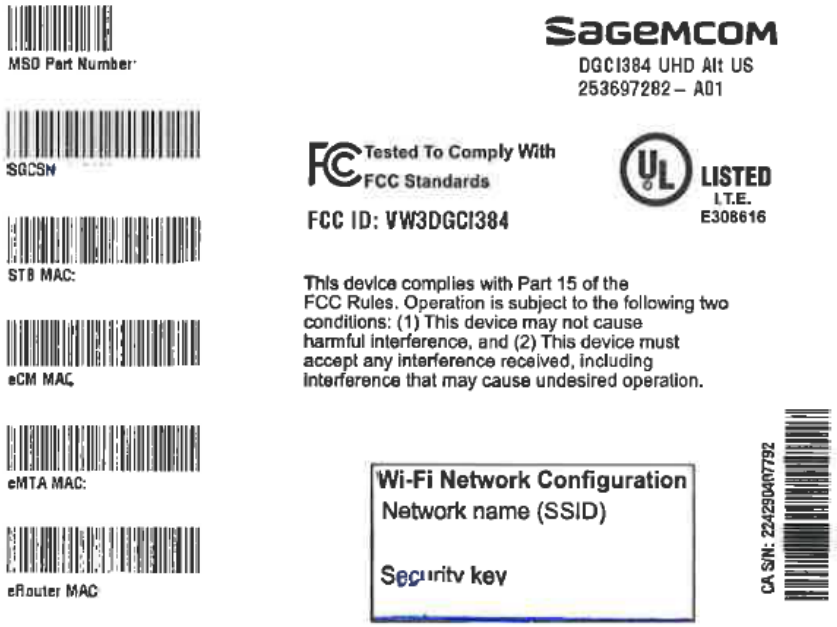
Power supply n° 1

Power supply n° 2



Power supply n° 3

Power supply n° 4



Example of the final labelling plate

2.4. EQUIPMENT MODIFICATION

☑ None ☐ Modification:

3. FREQUENCY TOLERANCE

3.1. TEST CONDITIONS

Test performed by	: Mathieu CERISIER
Date of test	: November 30, 2016
Ambient temperature	: 23 °C
Relative humidity	: 44 %

3.2. TEST SETUP

- The Equipment Under Test is installed:
☐ On a table
☑ In a climatic chamber
☐ In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:
☐ Conducted Method
☑ Radiated Method

- Test Procedure:
☑ ANSI C63.10 § 6.8

Photograph for Frequency Tolerance

3.1. LIMIT

The Center Frequency shall be inside +/-0.01MHz

3.2. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Calibration date	Calibration due
Multi-meter	KEITHLEY	2000	A1241084	2016/05	2018/05
Programmable AC/DC power supply	-; KIKUSUI	PCR500M	A7049006	Verified with calibrated multimeter	Verified with calibrated multimeter
EMI receiver	ROHDE & SCHWARZ	ESR 7	A2642023	2016/09	2017/09
RF cable & 20 dB attenuator	Télédyne	920-0202-048	A5329674	2016/09	2017/09
Climatic chamber	SECASI Technologies	SLT-34	D1024029	Verified with calibrated Thermometer	Verified with calibrated Thermometer
Thermometer	AOIP	TM 6630	B4041042	2016/09	2018/03

Note: In our quality system, the test equipment calibration due is more & less 2 months

3.3. RESULTS

EUT activation:	0min							
Voltage:	Vnom							
Temperature:	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C
Frequency (MHz)	13,5606	13,5606	13,5606	13,5605	13,5605	13,5604	13,5604	13,5604
Frequency Drift (%)	0,0044	0,0044	0,0044	0,0037	0,0037	0,0029	0,0029	0,0029
EUT activation:	2min							
Voltage:	Vnom							
Temperature:	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C
Frequency (MHz)	13,5606	13,5606	13,5606	13,5605	13,5605	13,5605	13,5604	13,5604
Frequency Drift (%)	0,0044	0,0044	0,0044	0,0037	0,0037	0,0037	0,0029	0,0029
EUT activation:	5min							
Voltage:	Vnom							
Temperature:	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C
Frequency (MHz)	13,5606	13,5606	13,5606	13,5605	13,5605	13,5605	13,5604	13,5604
Frequency Drift (%)	0,0044	0,0044	0,0044	0,0037	0,0037	0,0037	0,0029	0,0029
EUT activation:	10min							
Voltage:	Vnom							
Temperature:	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C
Frequency (MHz)	13,5606	13,5606	13,5606	13,5605	13,5605	13,5605	13,5604	13,5604
Frequency Drift (%)	0,0044	0,0044	0,0044	0,0037	0,0037	0,0037	0,0029	0,0029

Temperature	Tnom		
Voltage:	Vmin	Vnom	Vmax
Frequency (MHz)	13,5605	13,5605	13,5605
Frequency Drift (%)	0,0037	0,0037	0,0037

3.4. CONCLUSION

Frequency tolerance measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 limits.

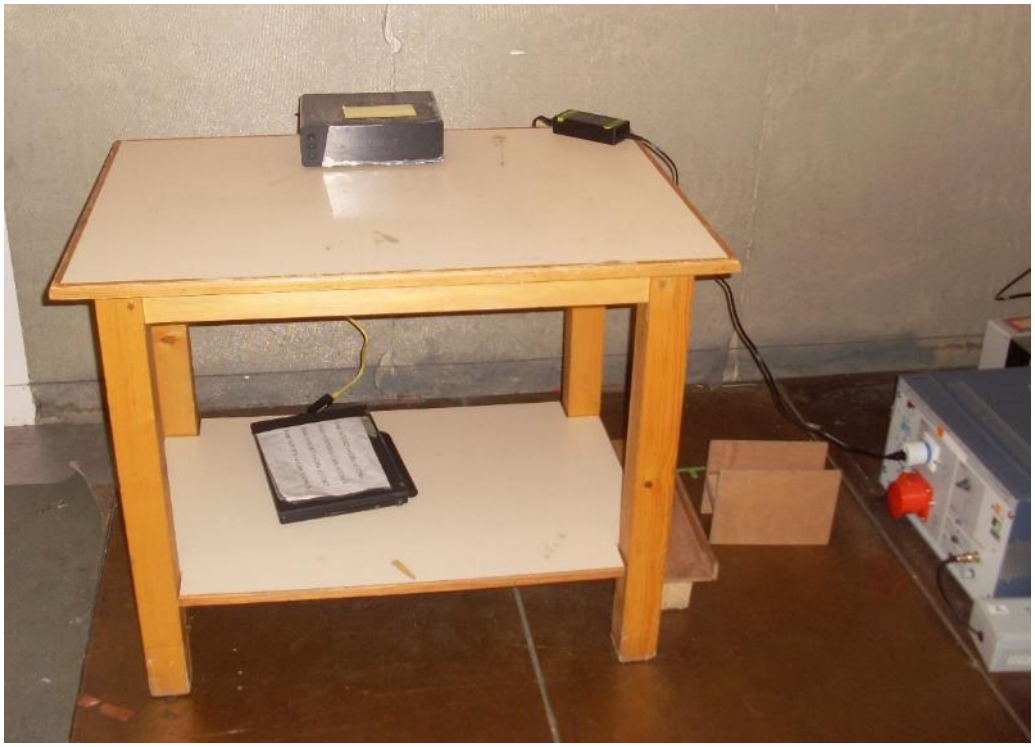
4. AC POWER LINE CONDUCTED EMISSIONS

4.1. TEST CONDITIONS

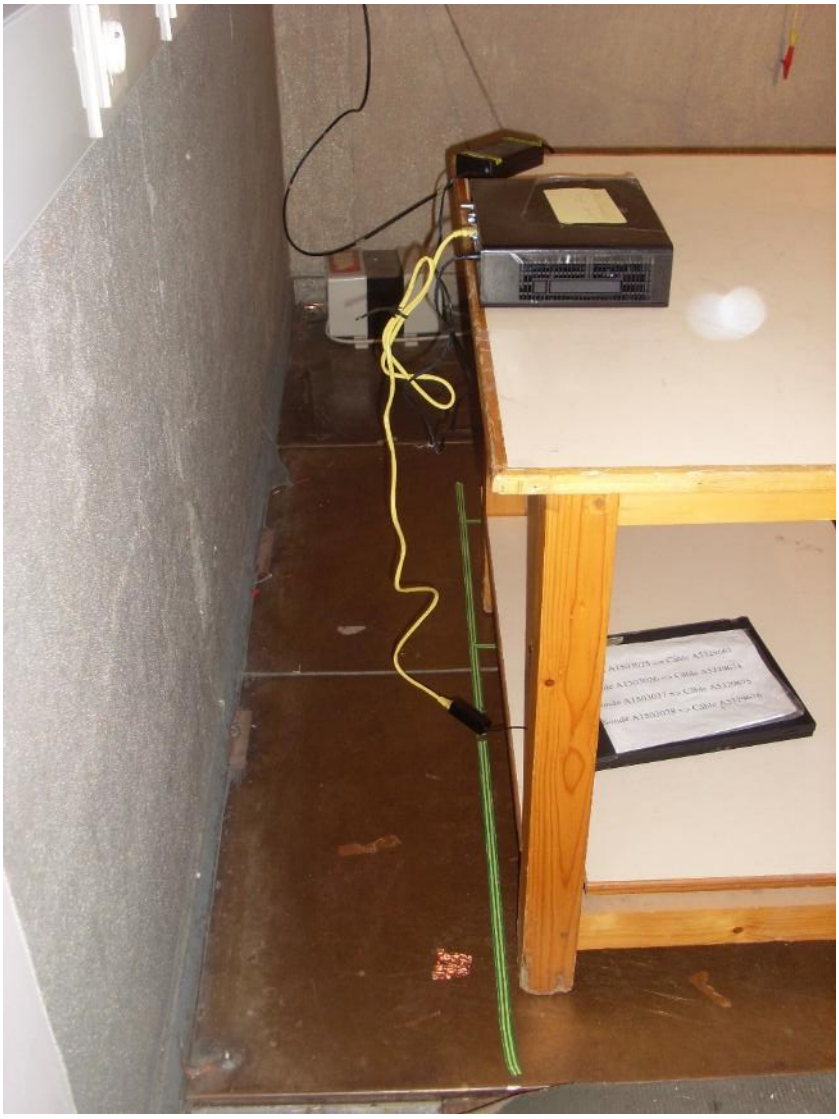
Test performed by	: Laurent DENEUX
Date of test	: November 24, 2016
Ambient temperature	: Temperature 21°C
Relative humidity	: Humidity 53%

4.2. TEST SETUP

The product has been tested according to ANSI C63.10 (2013) method. The EUT is placed on the ground reference plane, at 80cm from the LISN. The distance between the EUT and the vertical ground plane is 40cm. Auxiliaries are powered by another LISN. The cable has been shorted to 1meter length. The EUT is powered through the LISN. Measurement is made with a receiver in peak mode. This was followed by a Quasi-Peak, i.e. CISPR measurement for any strong signal. If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary. The LISN (measure) is 50Ω / 50µH. Interconnecting cables and equipment's were moved to position that maximized emission.



Photograph for AC Power Line Conducted Emissions (Front view)



Photograph for AC Power Line Conducted Emissions (Rear view)

4.3. LIMIT

Quasi-Peak
0,15kHz to 0,5MHz: 66dBµV to 56dBµV*
0,5MHz to 5MHz: 56dBµV
5MHz to 30MHz: 60dBµV

Average
0,15kHz to 0,5MHz: 56dBµV to 46dBµV*
0,5MHz to 5MHz: 46dBµV
5MHz to 30MHz: 50dBµV

*Decreases with the logarithm of the frequency

4.4. TEST EQUIPMENT LIST

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	A2642021	2015-12	2016-12
V ISLN	ROHDE & SCHWARZ	ESH2-Z5	C2322001	2016-05	2017-05
Pulse limiter	ROHDE & SCHWARZ	ESH3-Z2	A2649008	2016-03	2017-03
Cable	-	-	A5329417	2016-10	2017-10
Cable	-	-	A5329589	2016-10	2017-10
Ground plane	LCIE	-	-	-	-

Note: In our quality system, the test equipment calibration due is more & less 2 months

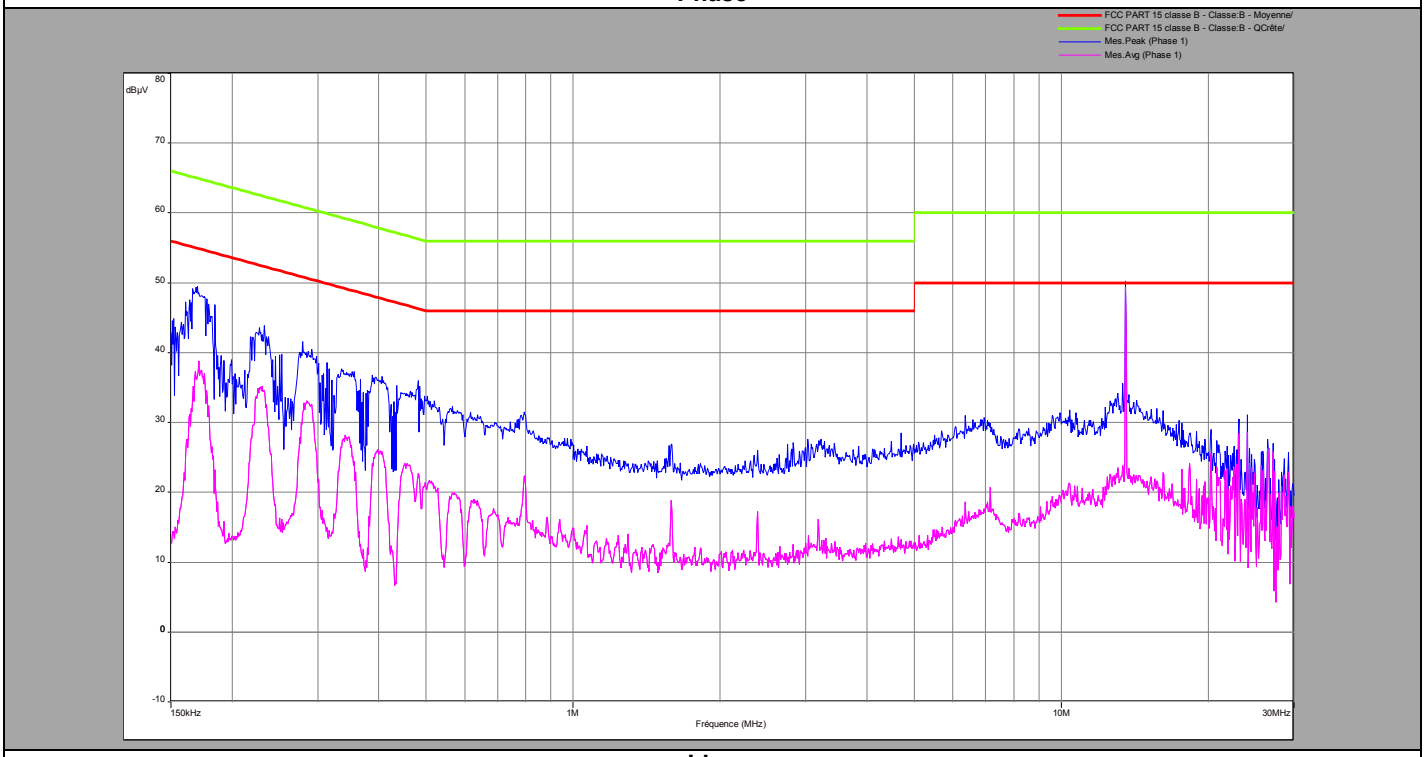
4.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

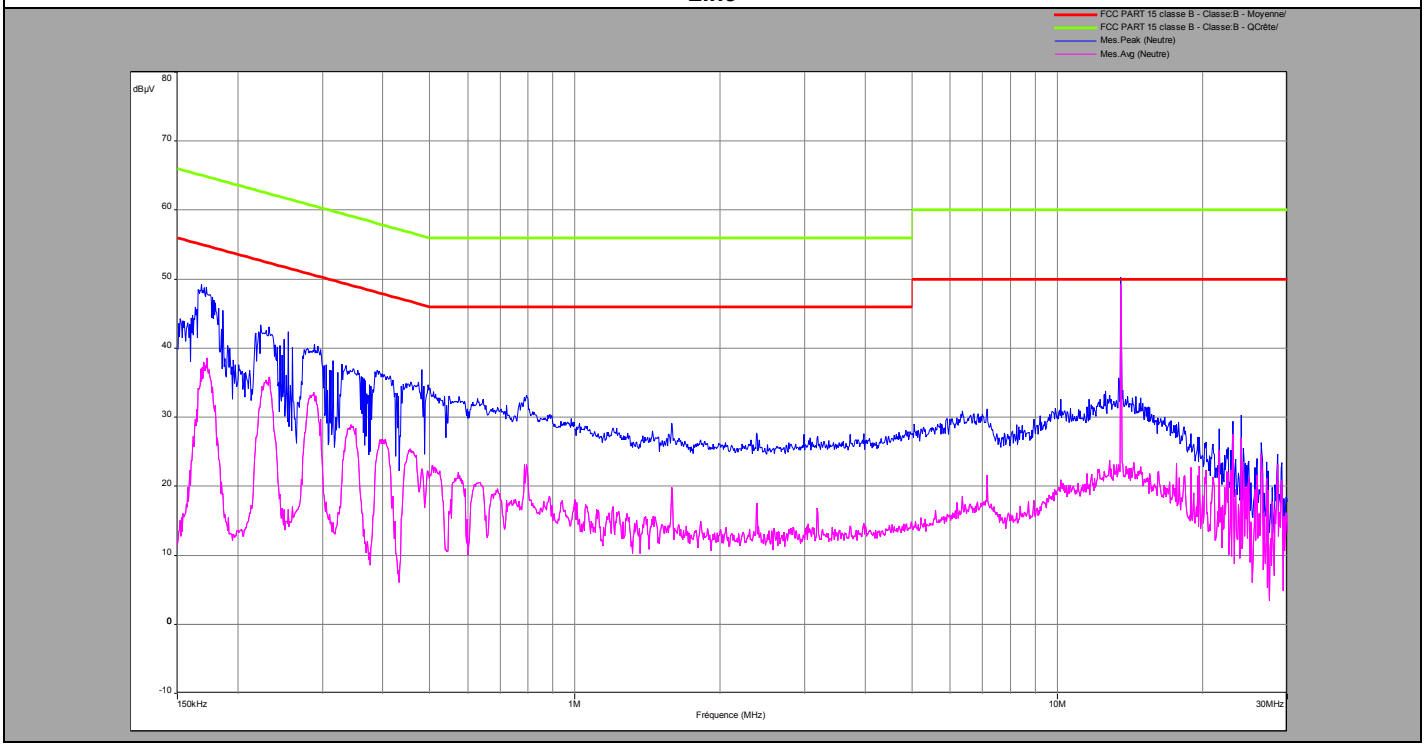
4.6. RESULTS

AC Power Line Conducted Emission

Phase



Line



Phase Line							
Frequency (MHz)	**Peak Level (dBµV)**	**Quasi-Peak Level (dBµV)**	**Quasi-Peak Limit (dBµV)**	**Margin Quasi-peak limit**	**Average Level (dBµV)**	**Average Limit (dBµV)**	**Margin Average Limit**
0,17	49,5	-	65	15,5	38,8	55	16,2
0,233	43,8	-	62,3	18,5	35	52,3	17,3
1,6	27	-	56	29	19	46	27
13,56	50,3	-	60	9,7	49,4	50	0,6
24	31,2	-	60	28,8	28,6	50	21,4

Neutral Line							
Frequency (MHz)	**Peak Level (dBµV)**	**Quasi-Peak Level (dBµV)**	**Quasi-Peak Limit (dBµV)**	**Margin Quasi-peak limit**	**Average Level (dBµV)**	**Average Limit (dBµV)**	**Margin Average Limit**
0,168	49,3	-	65	15,7	38,6	55	16,4
0,288	40,6	-	60,5	19,9	33,5	50,5	17
0,8	32,2	-	56	23,8	23	46	23
13,56	50,3	-	60	9,7	49,3	50	0,7
24	30,5	-	60	29,5	27	50	23

4.7. CONCLUSION

Ac Power Line Conducted Emission measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 limits.

5. FIELD STRENGTH OUTSIDE OF THE BANDS 13.110-14.010 MHZ

5.1. TEST CONDITIONS

Test performed by	: Laurent DENEUX
Date of test	: December 24, 2016 to
Ambient temperature	: Temperature 17°C
Relative humidity	: Humidity 47%

5.2. TEST SETUP

The product has been tested according to ANSI C63.10 (2013). The EUT is placed **on an open area test site**. Distance between measuring antenna and the EUT is **3m**.
Test is performed in parrallel and perpendicular axis with a loop antenna below 30MHz. Measurement bandwidth was 200Hz below 150kHz and 9kHz between 150kHz & 30MHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height was 1m.

Test is performed in horizontal (H) and vertical (V) polarization with **bilog** between 30MHz & 1GHz and with a horn antenna above 1GHz. Measurement bandwidth was 120kHz below 1GHz and 1MHz above 1GHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height search was performed from 1 to 4m. The EUT is place at 1.5m high above 1GHz and at 0.8m high under 1GHz. Distance between measuring antenna and the EUT is **10m**.

Photograph for Field strength outside of the bands 13.110-14.010 MHz

Photograph for Field strength outside of the bands 13.110-14.010 MHz

Photograph for Field strength outside of the bands 13.110-14.010 MHz

5.3. LIMIT

Limit at 3m:
9kHz to 0,490MHz: 2400/F(kHz)µV/m (300m) or 20log(2400/F(kHz))dBµV/m (3m) QPeak
0,490MHz to 1.705MHz: 240000/F(kHz)µV/m (30m) or 20log(240000/F(kHz))dBµV/m (3m) QPeak
1.705MHz to 30MHz: 30µV/m (30m) or dBµV/m (3m) QPeak

Limit at 10m:
30MHz to 88MHz: 29.5dBµV/m QPeak
88MHz to 216MHz: 33dBµV/m QPeak
216MHz to 960MHz: 35.5dBµV/m QPeak
960MHz to 1000MHz: 43.5dBµV/m QPeak
Above 1000MHz: 63.5BµV/m Peak
43.5BµV/m Average

5.4. TEST EQUIPMENT LIST

Apparatus	Trade Mark	Type	Registration number	Cal. Date	Cal. Due
Open test site	LCIE	-	F2000400	2016-05	2017-05
EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	A2642021	2015-12	2016-12
Preamplifier	HELWETT PACKARD	8449B	A7080071	2016-01	2017-01
Bilog antenna	CHASE	CBL 6112A	C2040040	2016-01	2017-01
Loop antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	2016-11	2017-11
Horn	ETS	3115	C2042023	2016-01	2017-01
Cable	-	-	A5329542	2016-03	2017-03
Cable	-	-	A5329449	2016-10	2017-10
Cable	-	-	A5329368	2016-05	2017-05
Cable	-	-	A5329444	2016-10	2017-10

Note: In our quality system, the test equipment calibration due is more & less 2 months

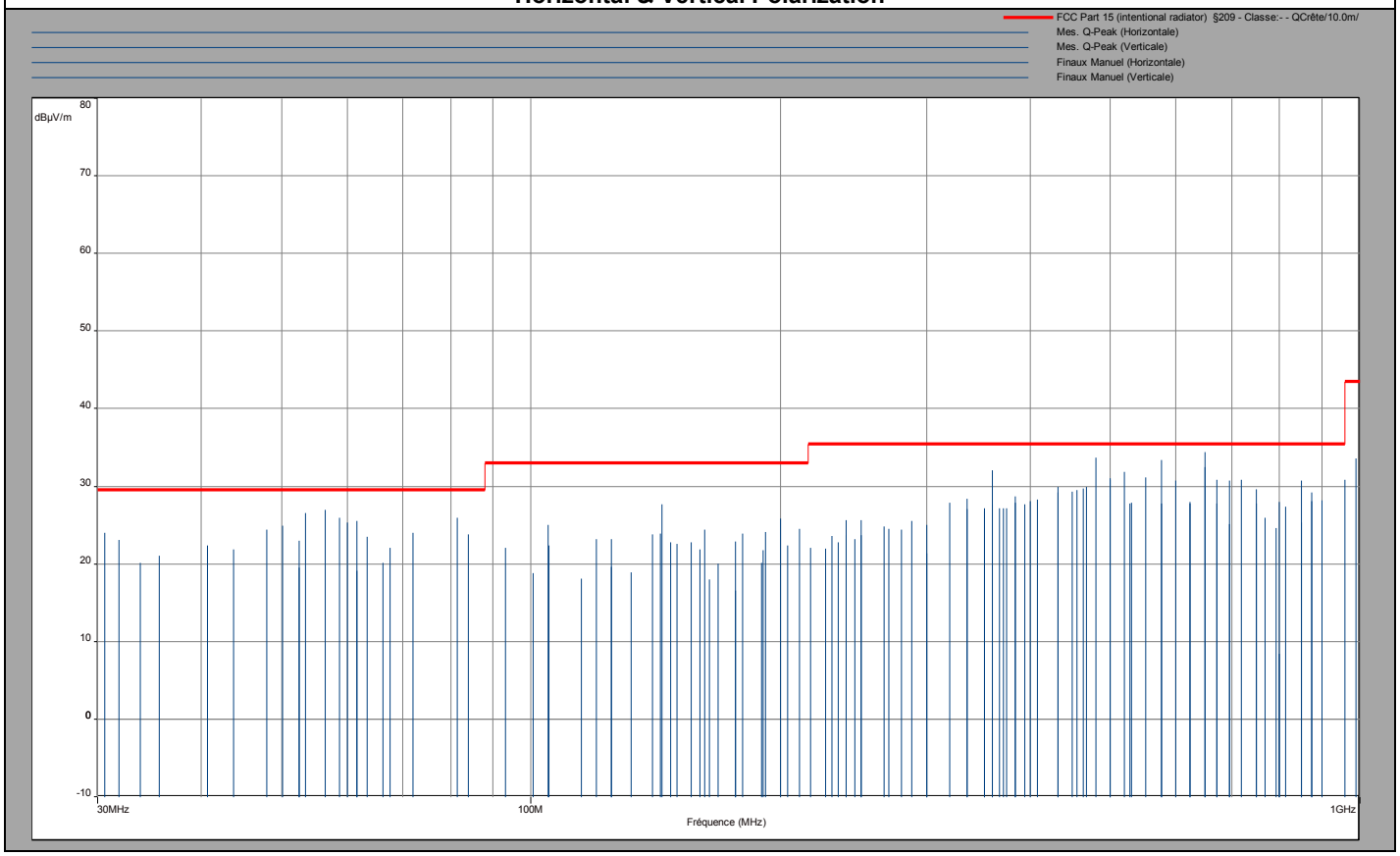
5.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

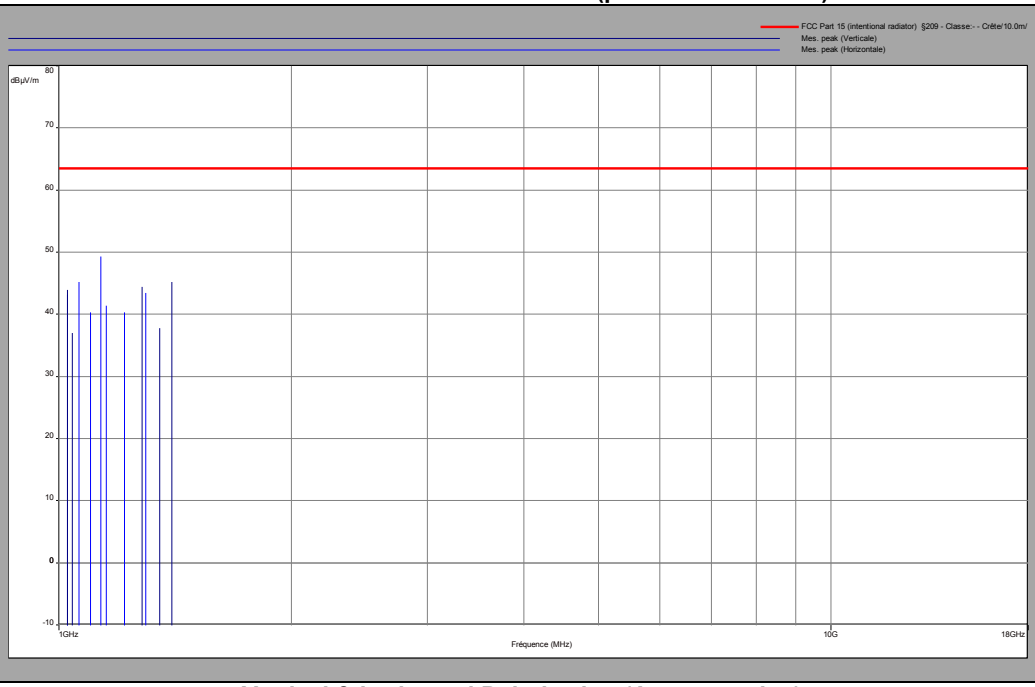
5.6. RESULTS

30MHz to 1GHz

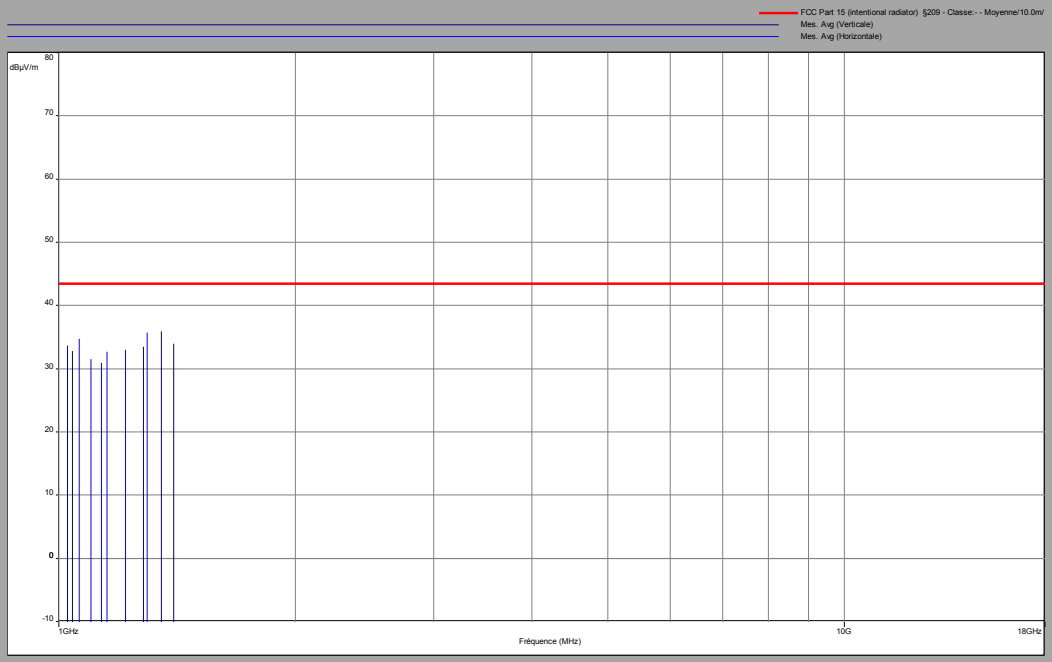
Horizontal & Vertical Polarization



Above 1GHz
Vertical & horizontal Polarization (peak measurement)



Vertical & horizontal Polarization (Average value)



9kHz to 30MHz:
No significant spurious has been observed

30MHz to 1GHz

Polarisation	Frequency (MHz)	level Quasi peak (dBµV/m)	limit FCC	margin
Vertical	30.6	24.08	29.5	5.42
Vertical	31.8	23.16	29.5	6.34
Vertical	33.8	20.22	29.5	9.28
Vertical	35.6	21.05	29.5	8.45
Vertical	40.7	22.39	29.5	7.11
Vertical	43.8	21.94	29.5	7.56
Vertical	48	24.45	29.5	5.05
Vertical	50.1	24.95	29.5	4.55
Vertical	52.5	22.99	29.5	6.51
Vertical	53.5	26.55	29.5	2.95
Vertical	56.5	27.02	29.5	2.48
Vertical	58.8	25.98	29.5	3.52
Vertical	60.1	25.39	29.5	4.11
Vertical	61.6	25.58	29.5	3.92
Vertical	63.5	23.52	29.5	5.98
Vertical	66.3	20.16	29.5	9.34
Vertical	67.6	22.15	29.5	7.35
Vertical	72	24.02	29.5	5.48
Vertical	81.4	25.99	29.5	3.51
Vertical	84	23.83	29.5	5.67
Vertical	93.2	22.16	33	10.84
Vertical	100.6	18.87	33	14.13
Vertical	105	22.37	33	10.63
Vertical	115	18.11	33	14.89
Vertical	120	23.2	33	9.8
Vertical	125	19.64	33	13.36
Vertical	132	18.98	33	14.02
Vertical	140	23.88	33	9.12
Vertical	144	27.71	33	5.29
Vertical	147.5	22.83	33	10.17
Vertical	150	22.59	33	10.41
Vertical	156	22.86	33	10.14
Vertical	160	21.91	33	11.09
Vertical	162	24.44	33	8.56
Vertical	164	17.98	33	15.02
Vertical	168	20.12	33	12.88
Vertical	176.3	22.91	33	10.09
Vertical	180	23.94	33	9.06

Polarisation	Frequency (MHz)	level Quasi peak (dBµV/m)	limit FCC	margin
Vertical	189.8	20.2	33	12,8
Vertical	192	24.17	33	8,83
Vertical	200	25.9	33	7,1
Vertical	211	24.53	33	8,47
Vertical	230.5	23.64	33	9,36
Vertical	240	25.64	35.5	9,86
Vertical	250	25.64	35.5	9,86
Vertical	266.7	24.9	35.5	10,6
Vertical	288	25.59	35.5	9,91
Vertical	300	21.4	35.5	14,1
Vertical	336	28.46	35.5	7,04
Vertical	352.6	27.16	35.5	8,34
Vertical	360	27.74	35.5	7,76
Vertical	371.8	27.25	35.5	8,25
Vertical	375	27.21	35.5	8,29
Vertical	384	28.74	35.5	6,76
Vertical	400	28.14	35.5	7,36
Vertical	432	29.23	35.5	6,27
Vertical	450	29.35	35.5	6,15
Vertical	456	29.5	35.5	6
Vertical	464	29.76	35.5	5,74
Vertical	468	29.91	35.5	5,59
Vertical	500	30.92	35.5	4,58
Vertical	520	31.92	35.5	3,58
Vertical	530	27.91	35.5	7,59
Vertical	576	33.4	35.5	2,1
Vertical	600	30.81	35.5	4,69
Vertical	624	28.03	35.5	7,47
Vertical	650	32.54	35.5	2,96
Vertical	672	30.87	35.5	4,63
Vertical	696	30.81	35.5	4,69
Vertical	750	29.61	35.5	5,89
Vertical	768	25.96	35.5	9,54
Vertical	792	24.62	35.5	10,88
Vertical	813.6	27.42	35.5	8,08
Vertical	850	30.81	35.5	4,69
Vertical	875	28.13	35.5	7,37
Vertical	989.9	33.59	35.5	1,91

Polarisation	Frequency (MHz)	level Quasi peak (dBµV/m)	limit FCC	margin
Horzontal	104.9	25.11	33	7,89
Horzontal	125	23.26	33	9,74
Horzontal	143.3	23.93	33	9,07
Horzontal	176.3	16.61	33	16,39
Horzontal	190.4	21.8	33	11,2
Horzontal	204	22.41	33	10,59
Horzontal	217.6	22.14	35.5	13,36
Horzontal	226.8	22.04	35.5	13,46
Horzontal	235	22.82	35.5	12,68
Horzontal	240	23.74	35.5	11,76
Horzontal	245.8	23.24	35.5	12,26
Horzontal	250	23.76	35.5	11,74
Horzontal	270	24.6	35.5	10,9
Horzontal	280	24.49	35.5	11,01
Horzontal	300	25.11	35.5	10,39
Horzontal	320	27.91	35.5	7,59
Horzontal	336	27.12	35.5	8,38
Horzontal	352.6	26.79	35.5	8,71
Horzontal	360	32.08	35.5	3,42
Horzontal	367.2	27.19	35.5	8,31
Horzontal	384	27.88	35.5	7,62
Horzontal	394.4	27.72	35.5	7,78
Horzontal	408	28.36	35.5	7,14
Horzontal	432	29.98	35.5	5,52
Horzontal	480	33.68	35.5	1,82
Horzontal	500	31.09	35.5	4,41
Horzontal	528	27.85	35.5	7,65
Horzontal	552	31.14	35.5	4,36
Horzontal	576	27.79	35.5	7,71
Horzontal	624	27.85	35.5	7,65
Horzontal	650	34.4	35.5	1,1
Horzontal	672	27.85	35.5	7,65
Horzontal	696	25.17	35.5	10,33
Horzontal	720	30.87	35.5	4,63
Horzontal	750	27.78	35.5	7,72
Horzontal	800	28.05	35.5	7,45
Horzontal	850	25.35	35.5	10,15
Horzontal	875	29.28	35.5	6,22
Horzontal	900	28.19	35.5	7,31

Above 1GHz							
Polarization	**Frequency (MHz)**	**Average Level (dBµV/m)**	**Average Limit (dBµV/m)**	**Margin Average Limit**	**Peak Level (dBµV/m)**	**Peak Limit (dBµV/m)**	**Margin Peak Limit**
Vertical	1050	31,3	43,5	12,2	42,62	63,5	20,88
Vertical	1125	30,16	43,5	13,34	39,51	63,5	23,99
Horizontal	1250	30,78	43,5	12,72	41,46	63,5	22,04
Horizontal	1579,9	32,45	43,5	11,05	43,38	63,5	20,12

5.7. CONCLUSION

Field strength outside of the bands 13.110-14.010 MHz measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 limits.

6. FIELD STRENGTH WITHIN THE BAND 13.110-14.010MHz

6.1. TEST CONDITIONS

Test performed by	: Laurent DENEUX
Date of test	: November 24, 2016
Ambient temperature	: Temperature 17°C
Relative humidity	: Humidity 47%

6.2. TEST SETUP

The product has been tested according to ANSI C63.10 (2013). The EUT is placed **on an open area test site**. Distance between measuring antenna and the EUT is **3m**.
Test is performed in parrallel and perpendicular axis with a loop antenna below 30MHz. Measurement bandwidth was 200Hz below 150kHz and 9kHz between 150kHz & 30MHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height was 1m.
The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height search was performed from 1 to 4m. The EUT is place at 0.8m.

Photograph for Field strength within the band 13.110-14.010MHz

Photograph for Field strength within the band 13.110-14.010MHz

Photograph for Field strength within the band 13.110-14.010MHz

6.3. LIMIT

Limit:

Below 13.110MHz:	30µV/m (30m) or 69.5dBµV/m (3m) QPeak
13.110MHz to 13.410MHz:	106µV/m (30m) or 80.5dBµV/m (3m)
13.410MHz to 13.553MHz:	334µV/m (30m) or 90.5dBµV/m (3m)
13.553MHz to 13.567MHz:	15848µV/m (30m) or 124dBµV/m (3m)
13.567MHz to 13.710MHz:	334µV/m (30m) or 90.5dBµV/m (3m)
13.710MHz to 14.010MHz:	106µV/m (30m) or 80.5dBµV/m (3m)
Above 14.010MHz:	30µV/m (30m) or 69.5dBµV/m (3m) QPeak

6.4. TEST EQUIPMENT LIST

Apparatus	Trade Mark	Type	Registration number	Cal. Date	Cal. Due
Open test site	LCIE	-	F2000400	2016-05	2017-05
EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	A2642021	2015-12	2016-12
Loop antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	2016-11	2017-11
Cable	-	-	A5329449	2016-10	2017-10
Cable	-	-	A5329368	2016-05	2017-05
Cable	-	-	A5329444	2016-10	2017-10

Note: In our quality system, the test equipment calibration due is more & less 2 months

6.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☑ None ☐ Divergence:

6.6. RESULTS

Parallel Axis			
Frequency (MHz)	**QPeak Level (dBµV/m) (3m)**	**Limit (dBµV/m) (3m)**	**Margin**
Below 13.110	38,2	69.5	31,3
13.110 to 13.410	42.6	80.5	37,9
13.410 to 13.553	45	90.5	45,5
13.553 to 13.567	66	124	58
13.567 to 13.710	44.1	90.5	46,4
13.710 to 14.010	39.2	80.5	41,3
Above 14.010	36.2	69.5	33,3

Perpendicular Axis			
Frequency (MHz)	**QPeak Level (dBµV/m) (3m)**	**Limit (dBµV/m) (3m)**	**Margin**
Below 13.110	39.7	69.5	29,8
13.110 to 13.410	41.3	80.5	39,2
13.410 to 13.553	47.3	90.5	43,2
13.553 to 13.567	62.2	124	61,8
13.567 to 13.710	44.6	90.5	45,9
13.710 to 14.010	37.8	80.5	42,7
Above 14.010	36.5	69.5	33

6.7. CONCLUSION

Field strength within the band 13.110-14.010MHz measurement performed on the sample of the product **SAGEMCOM TheBox (253697282)**, SN: **616400107098**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 limits.

7. UNCERTAINTIES CHART

47 CFR Part 15.209 & 15.207 Kind of test	Wide uncertainty laboratory (k=2) ±x(dB) / (Hz)/ ms	Uncertainty limit
Measurement of conducted disturbances in voltage on the AC power port (9 kHz – 150 kHz)	2,67	3.8
Measurement of conducted disturbances in voltage on the AC power port (150 kHz – 30 MHz)	2,67	3.4
Measurement of conducted disturbances in voltage on the telecommunication port. (AAN)	3,67	5.0
Measurement of conducted disturbances in current (current clamp)	2,73	2.9
Measurement of disturbance power	2,67	4.5
Measurement of radiated magnetic field from 10kHz to 30MHz in SAC V01	4,48	/
Measurement of radiated magnetic field from 10kHz to 30MHz in SAC C01	4,48	/
Measurement of radiated electric field from 30 to 1000MHz in horizontal position on the OATS (Ecuelles)	4,88	6.3
Measurement of radiated electric field from 1 to 18GHz on the Ecuelles site	5.16	/
Measurement of radiated electric field from 30 to 1000MHz in vertical position on the OATS (Ecuelles)	4,99	6.3
Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC C01	5,08	6.3
Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC C01	5,16	6.3
Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC V01	5,08	6.3
Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC V01	5,15	6.3
Measurement of radiated electric field from 1 to 6 GHz C01	5,1	5.2
Measurement of radiated electric field from 1 to 6 GHz V01	4,85	5.2
Measurement of radiated magnetic field from 10kHz to 30MHz on the OATS (Ecuelles)	4,48	/

The uncertainty values calculated by the laboratory are lower than limit uncertainty values defined by the CISPR. The conformity of the sample is directly established by the applicable limits values. This table includes all uncertainties maximum feasible for testing in the laboratory, whether or not made in this report