TEST REPORT

Test Report No. : UL-RPT-RP10640830JD08A

Manufacturer	:	Panasonic Mobile Communications Development of Europe Ltd
Model No.	:	SoftBank 401PM
FCC ID	:	UCE215063A
Test Standard(s)	:	FCC Parts 15.107 & 15.109

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2. The results in this report apply only to the sample(s) tested.
3. The sample tested is in compliance with the above standard(s).
4. The test results in this report are traceable to the national or international standards.
5. Version 1.0.

Date of Issue: 18 March 2015

Checked by:

Sarah Williams
Engineer, Radio Laboratory

Issued by :

pp

John Newell
Quality Manager,
UL VS LTD

0644

This laboratory is accredited by UKAS. The tests reported herein have been performed in accordance with its terms of accreditation.

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1. Customer Information

Company Name:	Panasonic Mobile Communications Development of Europe Ltd
Address:	Panasonic House Willoughby Road Bracknell Berkshire RG12 8FP United Kingdom

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.107 and 47CFR15.109
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart B (Unintentional Radiators) – Sections 15.107 and 15.109
Site Registration:	209735
Location of Testing:	UL VS LTD, Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom
Test Dates:	05 March 2015 to 09 March 2015

2.2. Summary of Test Results

FCC (47CFR)	Measurement	Result
Part 15.107(a)	Receiver/Idle Mode AC Conducted Spurious Emissions	✓
Part 15.109	Receiver/Idle Mode Radiated Spurious Emissions	✓
Key to Results ✓ = Complied ✗ = Did not comply		

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	SoftBank
Model Name or Number:	401PM
Test Sample IMEI Number:	004401221425149 *(Radiated sample)*
Hardware Version Number:	Rev C
Software Version Number:	ACPU: B-S51CS1-10.01.002 CCPU: S51CS1_Cv62010101
FCC ID:	UCE215063A

Brand Name:	SoftBank
Description:	AC Adaptor
Model Name or Number:	Type ZTDAA1

Brand Name:	SoftBank
Description:	Stereo Headset
Model Name or Number:	Type ZTBBA1

Brand Name:	SoftBank
Description:	USB Data Cable
Model Name or Number:	ZTFE01

Brand Name:	SoftBank
Description:	Rechargeable Li-ion Battery Pack
Model Name or Number:	PMBBH2

3.2. Description of EUT

The equipment under test was a Dual Mode GSM/UTRA Mobile Phone with Bluetooth.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Type of Radio Device:	Transceiver	
Power Supply Requirement(s):	Nominal	3.7 VDC

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Micro SD Card
Brand Name:	Panasonic
Model Name or Number:	Not marked or stated
Serial Number:	Not marked or stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Receiver/Idle mode.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- AC conducted emissions tests were performed with the charger connected to the only EUT's port.
- Radiated spurious emissions tests were performed with the AC Charger connected to the EUT, as this was found to be the worst case during pre-scans. All the accessories were individually connected and measurements were made during the pre-scans to determine the worst case combination.
- The micro SD and the SIM port of the EUT were terminated with a micro SD and a SIM card respectively.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6. Measurement Uncertainty* for details.

In accordance with UKAS requirements all the measurement equipment is on a calibration schedule. All equipment was within the calibration period on the date of testing.

5.2. Test Results

5.2.1. Receiver/Idle Mode AC Conducted Spurious Emissions

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Date:**	09 March 2015
Test Sample Serial Number:	004401221425149		

FCC Reference:	Part 15.107
Test Method Used:	ANSI C63.4 Section 7

Environmental Conditions:

Temperature (°C):	21
Relative Humidity (%):	41

Results: Live / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.218	Live	39.9	62.9	23.0	Complied
0.515	Live	23.0	56.0	33.0	Complied
1.581	Live	16.8	56.0	39.2	Complied
1.784	Live	18.3	56.0	37.7	Complied
1.797	Live	18.0	56.0	38.0	Complied
2.022	Live	13.1	56.0	42.9	Complied

Results: Live / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.186	Live	28.9	54.2	25.3	Complied
0.533	Live	9.7	46.0	36.3	Complied
0.857	Live	4.5	46.0	41.5	Complied
1.779	Live	4.5	46.0	41.5	Complied
2.049	Live	5.4	46.0	40.6	Complied
25.058	Live	13.8	50.0	36.2	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)

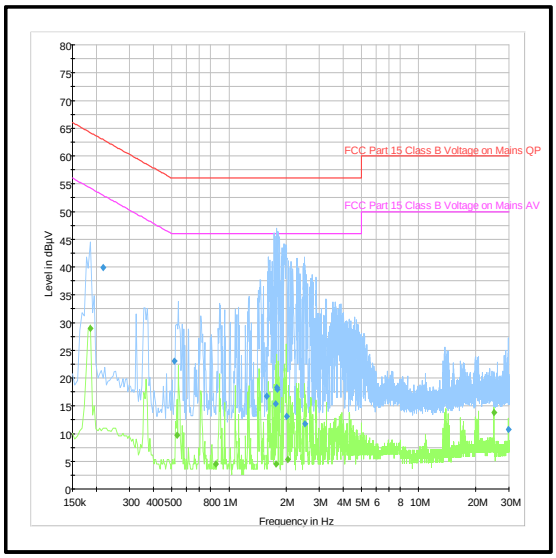
Results: Neutral / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.263	Neutral	31.7	61.4	29.7	Complied
0.515	Neutral	26.1	56.0	29.9	Complied
1.028	Neutral	18.8	56.0	37.2	Complied
1.793	Neutral	22.7	56.0	33.3	Complied
14.330	Neutral	10.5	60.0	49.5	Complied
29.936`	Neutral	10.4	60.0	49.6	Complied

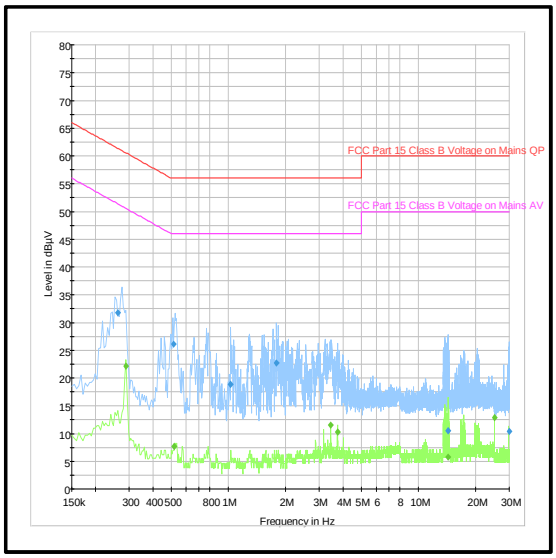
Results: Neutral / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.290	Neutral	22.2	50.5	28.3	Complied
0.519	Neutral	7.7	46.0	38.3	Complied
3.453	Neutral	11.5	46.0	34.5	Complied
3.741	Neutral	10.2	46.0	35.8	Complied
14.330	Neutral	5.7	50.0	44.3	Complied
25.058	Neutral	12.9	50.0	37.1	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)



Live



Neutral

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1625	Thermohygrometer	JM Handelspunkt	30.5015.06	None stated	07 Jan 2016	12
A067	LISN	Rohde & Schwarz	ESH3-Z5	890603/002	14 Aug 2015	12
A1830	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100668	02 Mar 2016	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	14 Oct 2015	12

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

Test Engineer:	Andrew Edwards	**Test Dates:**	06 March 2015 & 07 March 2015
Test Sample Serial Number:	004401221425149		

FCC Reference:	Part 15.109
Test Method Used:	ANSI C63.4 Section 8
Frequency Range:	30 MHz to 1000 MHz

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	32 to 34

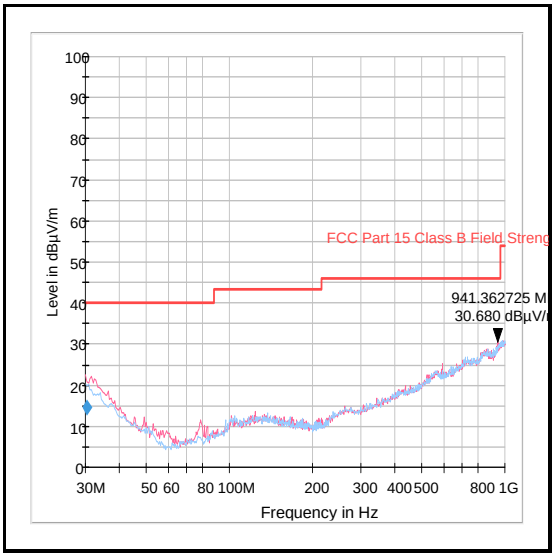
Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table below.
3. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Results: Quasi Peak

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
941.363	Vertical	30.7	46.0	15.3	Complied

Receiver/Idle Mode Radiated Spurious Emissions (continued)



Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1624	Thermohygrometer	JM Handelspunkt	30.5015.10	0	07 Jan 2016	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	26 Mar 2015	12
M1379	Test Receiver	Rohde & Schwarz	ESIB7	100330	08 Dec 2015	12
A490	Antenna	Chase	CBL6111A	1590	29 Apr 2015	12
G0543	Amplifier	Sonoma	310N	230801	05 Jun 2015	3
A1834	Attenuator	Hewlett Packard	8491B	10444	05 Mar 2016	12

Receiver/Idle Mode Radiated Spurious Emissions (continued)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	05 March 2015
Test Sample IMEI:	004401221425149		

FCC Reference:	Part 15.109
Test Method Used:	ANSI C63.4 Section 8
Frequency Range:	1 GHz to 12.75 GHz

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	31

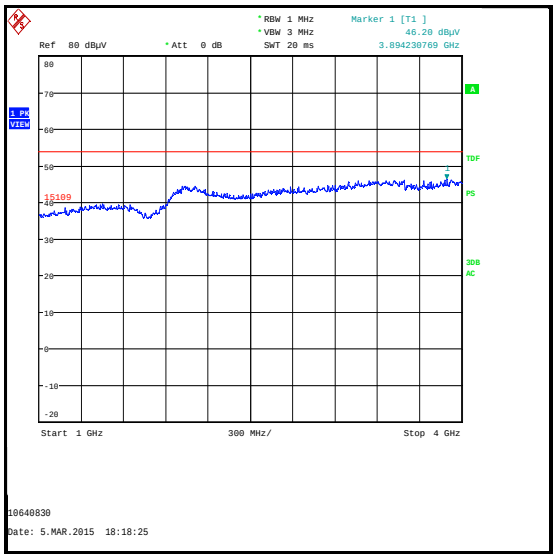
Note(s):

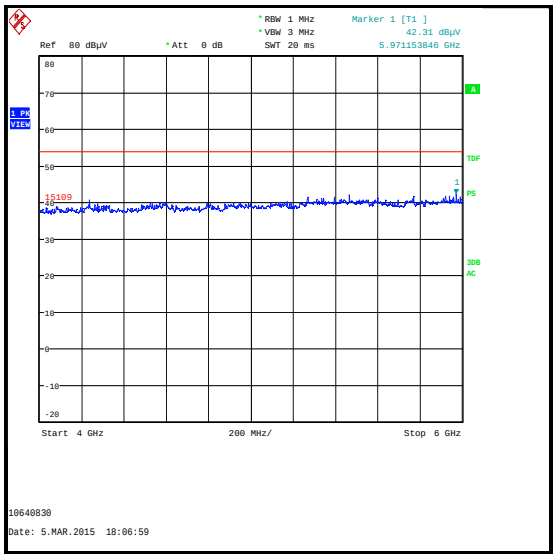
1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table below. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit.
3. Measurements were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
4. Pre-scans above 1 GHz were performed in a fully anechoic chamber (Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

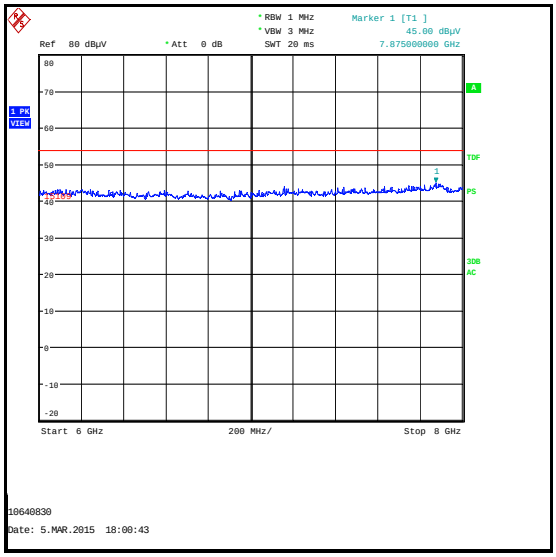
Results:

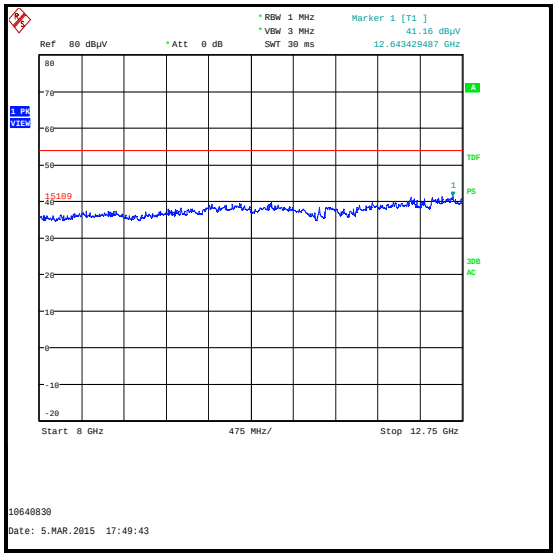
Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
3894.231	Vertical	46.2	54.0	7.8	Complied

Receiver/Idle Mode Radiated Spurious Emissions (continued)









Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1656	Thermohygrometer	JM Handelspunkt	30.5015.13	Not stated	14 Mar 2015	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	31 Mar 2015	12
M1630	Test Receiver	Rohde & Schwarz	ESU40	100233	20 Feb 2016	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	21 Dec 2015	12
A1818	Antenna	EMCO	3115	00075692	20 Dec 2015	12
A253	Antenna	Flann Microwave	12240-20	128	20 Dec 2015	12
A254	Antenna	Flann Microwave	14240-20	139	20 Dec 2015	12
A255	Antenna	Flann Microwave	16240-20	519	20 Dec 2015	12

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±4.69 dB
Radiated Spurious Emissions	30 MHz to 1 GHz	95%	±5.65 dB
Radiated Spurious Emissions	1 GHz to 12.75 GHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

7. Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version

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