



TEST REPORT

Test Report No. : UL-RPT-RP10295122JD01O V2.0

Manufacturer : Sony Mobile Communications Inc.

FCC ID : PY7PM-0801

Test Standard(s) : FCC Parts 15.107 & 15.109

1. This test report shall not be reproduced in full or partial, without the written approval of UL VS LTD.
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 2.0 supersedes all previous versions.

Date of Issue: 01 August 2014

Checked by:

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Issued by :

pp

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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: | Sony Mobile Communications Inc. |
| Address: | Nya Vattentornet Mobilvägen 10 Lund 22188 Sweden |

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: | 28 May 2014 to 10 June 2014 |

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: | Sony |
| IMEI: | 004402452750601 (<i>Radiated sample</i>) |
| Test Sample Serial Number: | CB5A1Z1S11 |
| Hardware Version Number: | A |
| Software Version Number: | 23.0.A.0.204 |
| FCC ID: | PY7PM-0801 |

| | |
|------------------------------|------------|
| Brand Name: | Sony |
| Description: | AC Charger |
| Model Name or Number: | EP880 |

| | |
|------------------------------|------------|
| Brand Name: | Monoprice |
| Description: | MHL Cable |
| Model Name or Number: | Not marked |

| | |
|------------------------------|-------------|
| Brand Name: | Sony |
| Description: | MHL Adaptor |
| Model Name or Number: | IM750 |

| | |
|------------------------------|------------|
| Brand Name: | Sony |
| Description: | Desk Stand |
| Model Name or Number: | DK43 |

| | |
|------------------------------|-----------|
| Brand Name: | Sony |
| Description: | USB Cable |
| Model Name or Number: | EC803 |

| | |
|------------------------------|--------|
| Brand Name: | Sony |
| Description: | PHF |
| Model Name or Number: | MH410c |

3.2. Description of EUT

The equipment under test (EUT) was a GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac + NFC & ANT+.

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 | 3.8 VDC |

3.5. Support Equipment

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

| | | |
|------------------------------|--------------------|--|
| Description: | 2 GB Micro SD Card | |
| Brand Name: | SanDisk | |
| Model Name or Number: | Not marked | |

| | | |
|------------------------------|--------------------------------|--|
| Description: | 22" High Definition Television | |
| Brand Name: | Logik | |
| Model Name or Number: | L22FE12A | |
| Serial Number: | 1309020661 | |

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):

- Idle radiated spurious emission tests were performed with the following configurations, employing all available accessories:
 - Configuration 1 – Handset with the AC charger, USB Cable, MHL cable (terminated in to a television), MHL adaptor and PHF
 - Configuration 2 – Handset with the AC charger, Deskstand and PHF

Pre-scans below 1 GHz were performed in both configurations 1 and 2, with final measurements limited to the configuration which provided worst case results. Pre-scans above 1 GHz were performed in the configuration that employed the most accessories (Configuration 1)

- The radiated sample with IMEI 004402452750601 was used for all measurements.

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: | 03 June 2014 |
| Test Sample IMEI: | 004402452750601 | | |

| | |
|--------------------------|-----------------|
| FCC Reference: | Part 15.107 |
| Test Method Used: | ANSI C63.4-2009 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 22 |
| Relative Humidity (%): | 56 |

Results: Live / Quasi Peak

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|------|--------------------|--------------------|-------------|----------|
| 0.213 | Live | 38.4 | 63.1 | 24.7 | Complied |
| 0.461 | Live | 28.7 | 56.7 | 28.0 | Complied |
| 0.483 | Live | 34.4 | 56.3 | 21.9 | Complied |
| 1.145 | Live | 28.1 | 56.0 | 27.9 | Complied |
| 1.451 | Live | 28.1 | 56.0 | 27.9 | Complied |
| 14.640 | Live | 37.7 | 60.0 | 22.3 | Complied |

Results: Live / Average

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|------|--------------------|--------------------|-------------|----------|
| 0.227 | Live | 27.3 | 52.6 | 25.3 | Complied |
| 0.429 | Live | 24.2 | 47.3 | 23.1 | Complied |
| 0.483 | Live | 28.7 | 46.3 | 17.6 | Complied |
| 0.911 | Live | 20.6 | 46.0 | 25.4 | Complied |
| 1.451 | Live | 16.9 | 46.0 | 29.1 | Complied |
| 17.970 | Live | 25.0 | 50.0 | 25.0 | Complied |

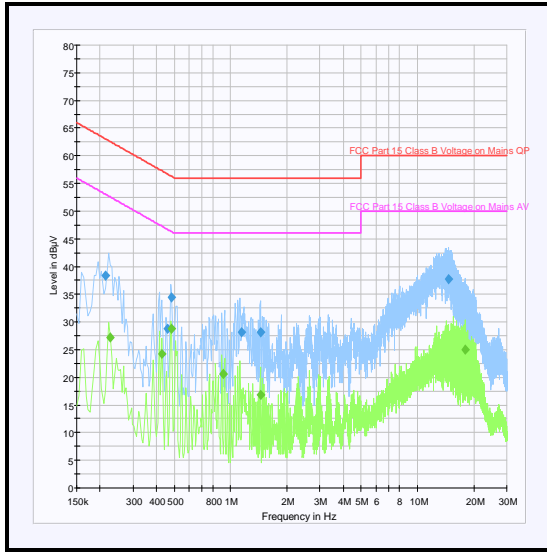
Receiver/Idle Mode AC Conducted Spurious Emissions (continued)**Results: Neutral / Quasi Peak**

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|---------|--------------------|--------------------|-------------|----------|
| 0.204 | Neutral | 39.4 | 63.4 | 24.0 | Complied |
| 0.213 | Neutral | 37.7 | 63.1 | 25.4 | Complied |
| 0.483 | Neutral | 40.0 | 56.3 | 16.3 | Complied |
| 0.879 | Neutral | 31.6 | 56.0 | 24.4 | Complied |
| 4.430 | Neutral | 29.7 | 56.0 | 26.3 | Complied |
| 14.271 | Neutral | 39.0 | 60.0 | 21.0 | Complied |

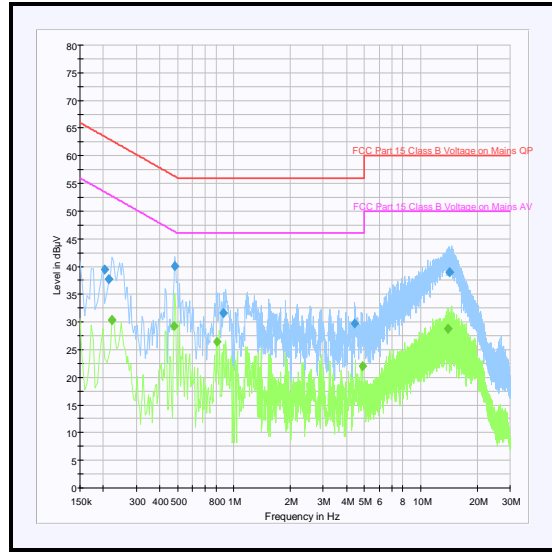
Results: Neutral / Average

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|---------|--------------------|--------------------|-------------|----------|
| 0.222 | Neutral | 30.3 | 52.7 | 22.4 | Complied |
| 0.479 | Neutral | 29.2 | 46.4 | 17.2 | Complied |
| 0.812 | Neutral | 26.4 | 46.0 | 19.6 | Complied |
| 4.866 | Neutral | 22.0 | 46.0 | 24.0 | Complied |
| 13.997 | Neutral | 28.7 | 50.0 | 21.3 | 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 Handelpunkt | 30.5015.06 | None stated | 31 Dec 2014 | 12 |
| A004 | Single phase LISN | Rohde & Schwarz | ESH3-Z5 | 890604/027 | 18 Nov 2014 | 12 |
| A1830 | Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 100668 | 27 Feb 2015 | 12 |
| M1263 | EMI Test Receiver | Rohde & Schwarz | ESIB 7 | 100265 | 14 Oct 2014 | 12 |

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions**Test Summary:**

| | | | |
|--------------------------|-----------------|-------------------|-------------|
| Test Engineer: | Georgios Vrezas | Test Date: | 28 May 2014 |
| Test Sample IMEI: | 004402452750601 | | |

| | |
|--------------------------|------------------|
| FCC Reference: | Part 15.109 |
| Test Method Used: | ANSI C63.4-2009 |
| Frequency Range: | 9KHz to 1000 MHz |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 35 |

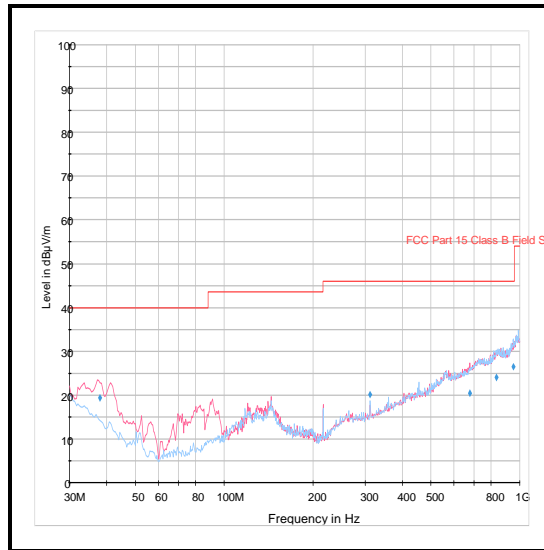
Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. In accordance with FCC part 15.33, pre scans were performed from 9 KHz to 30MHz. As there were no emissions observed within 20dB of the limit, in accordance with 15.31(o), no pre scans are included in this test report. The pre scans are kept on file and are available on request.
3. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
4. 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 (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Result |
|-----------------|------------------|----------------------|----------------------|-------------|----------|
| 37.989 | Vertical | 19.4 | 40.0 | 20.6 | Complied |
| 312.000 | Vertical | 20.1 | 46.0 | 25.9 | Complied |
| 678.558 | Vertical | 20.5 | 46.0 | 25.5 | Complied |
| 832.042 | Horizontal | 24.1 | 46.0 | 21.9 | Complied |
| 951.101 | Horizontal | 26.4 | 46.0 | 19.6 | Complied |

Receiver/Idle Mode Radiated Spurious Emissions (continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

Test Equipment Used:

| Asset No. | Instrument | Manufacturer | Type No. | Serial No. | Date Calibration Due | Cal. Interval (Months) |
|-----------|------------------|-----------------|------------|-------------|----------------------|------------------------|
| M1622 | Thermohygrometer | JM Handelspunkt | 30.5015.06 | None stated | 31 Dec 2014 | 12 |
| K0001 | 5m RSE Chamber | Rainford EMC | N/A | N/A | 26 Nov 2014 | 12 |
| A1834 | Attenuator | Hewlett Packard | 8491B | 10444 | 15 Nov 2014 | 12 |
| G0543 | Amplifier | Sonoma | 310N | 230801 | 19 Aug 2014 | 3 |
| M1273 | Test Receiver | Rohde & Schwarz | ESIB 26 | 100275 | 15 Feb 2015 | 12 |
| A490 | Antenna | Chase | CBL6111A | 1590 | 29 Apr 2015 | 12 |

Receiver/Idle Mode Radiated Spurious Emissions (continued)**Test Summary:**

| | | | |
|--------------------------|-------------------------------------|--------------------|--------------------------------|
| Test Engineers: | Georgios Vrezas & Andrew Edwards | Test Dates: | 02 June 2014 & 10 June 2014 |
| Test Sample IMEI: | 004402452750601 | | |

| | |
|--------------------------|-------------------------------------|
| FCC Reference: | Part 15.109 |
| Test Method Used: | As detailed in ANSI C63.4 Section 8 |
| Frequency Range: | 1 GHz to 29.5 GHz |

Environmental Conditions:

| | |
|-------------------------------|----------|
| Temperature (°C): | 23 to 24 |
| Relative Humidity (%): | 37 to 43 |

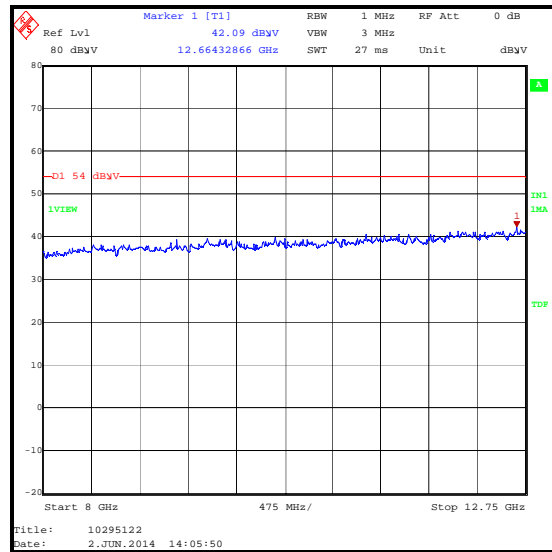
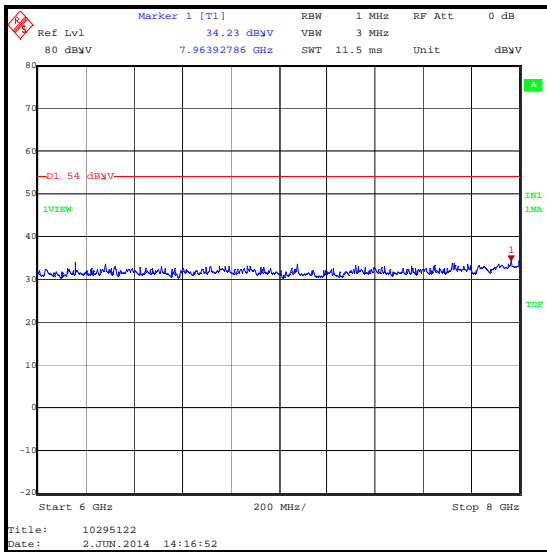
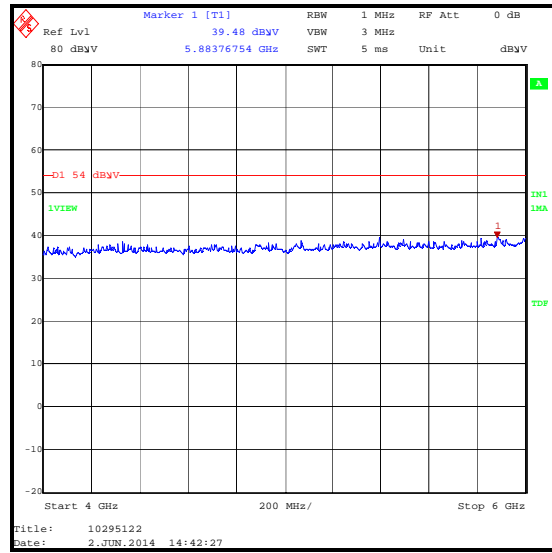
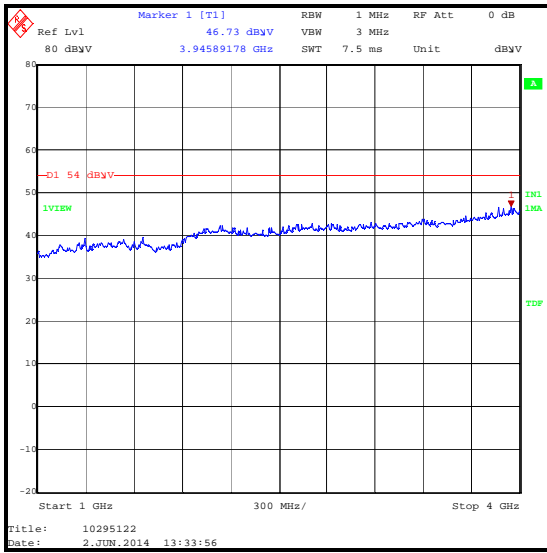
Note(s):

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.

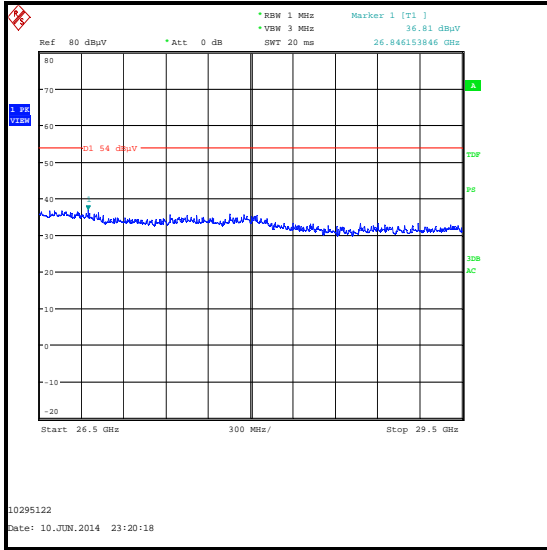
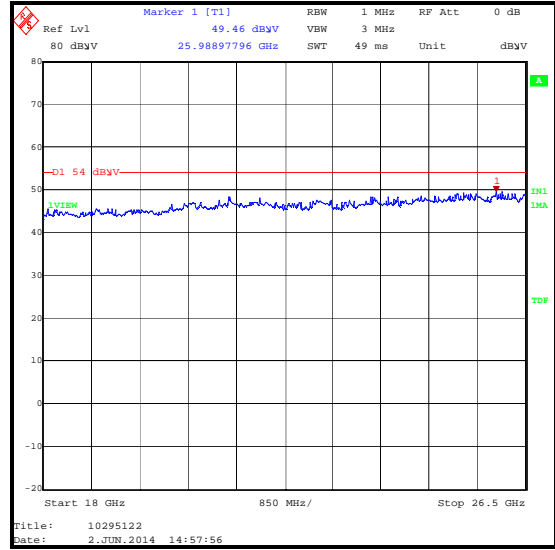
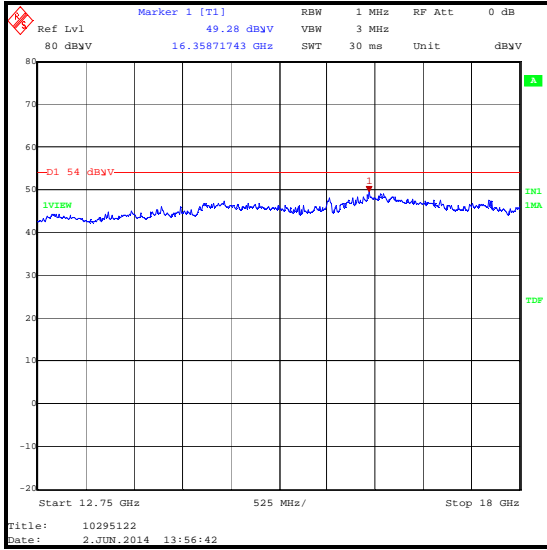
Results:

| Frequency (MHz) | Antenna Polarity | Peak Level (dB μ V/m) | Average Limit (dB μ V/m) | Margin (dB) | Result |
|-----------------|------------------|---------------------------|------------------------------|-------------|----------|
| 25988.978 | Vertical | 49.5 | 54.0 | 4.5 | Complied |

Receiver/Idle Mode Radiated Spurious Emissions (continued)



Receiver/Idle Mode Radiated Spurious Emissions (continued)



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 | None stated | 14 Mar 2015 | 12 |
| K0002 | 3m RSE Chamber | Rainford EMC | N/A | N/A | 14 Nov 2014 | 12 |
| M1124 | Test Receiver | Rohde & Schwarz | ESIB 26 | 100046K | 01 Oct 2014 | 12 |
| A1534 | Pre Amplifier | Hewlett Packard | 8449B | 3008A00405 | 18 May 2015 | 12 |
| A1818 | Antenna | EMCO | 3115 | 00075692 | 14 Nov 2014 | 12 |
| A253 | Antenna | Flann Microwave | 12240-20 | 128 | 14 Nov 2014 | 12 |
| A254 | Antenna | Flann Microwave | 14240-20 | 139 | 14 Nov 2014 | 12 |
| A255 | Antenna | Flann Microwave | 16240-20 | 519 | 14 Nov 2014 | 12 |
| A256 | Antenna | Flann Microwave | 18240-20 | 400 | 14 Nov 2014 | 12 |
| A436 | Antenna | Flann Microwave | 20240-20 | 330 | 14 Nov 2014 | 12 |
| A203 | Antenna | Flann Microwave | 22240-20 | 343 | 19 May 2016 | 36 |
| A1785 | Pre-Amplifier | Farran Technology | FLNA-28-30 | FTL 6483 | 13 Jan 2015 | 12 |
| M1630 | Test Receiver | Rohde & Schwarz | ESU40 | 100233 | 13 Mar 2015 | 12 |
| M1269 | Multimeter | Fluke | 179 | 90250210 | 19 May 2015 | 12 |
| S0523 | DC Power Supply Unit | TTi | PL320 | 224235 | Calibrated before use | - |

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 29.5 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 |
| 2.0 | - | - | EUT Description update |

--- END OF REPORT ---