FCC CFR47 PART 15 SUBPART B

VERIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac, ANT+ & NFC

FCC ID: PY7PM-0810
IC: 4170B-PM0810

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Prepared for
SONY MOBILE COMMUNICATIONS, INC.
NYA VATTENTORNET MOBILVAGEN 10
LUND 22188
SWEDEN

Prepared by
UL VERIFICATION SERVICES INC.
1285 WALT WHITMAN RD
MELVILLE, NY 11747, U.S.A.
TEL: (631) 271-6200
FAX: (877) 854-3577

NVLAP LAB CODE 100255-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	7/25/14	Initial Issue	M. Antola

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONY MOBILE COMMUNICATIONS, INC.

EUT DESCRIPTION: GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac, ANT+ & NFC

MODEL: PM-0810-BV

SERIAL NUMBER: 1906287

DATE TESTED: 7/2/14 - 7/25/14

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART B	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL By:

PHILIP KIM
CONSUMER TECHNOLOGY DIVISION
PROGRAM MANAGER
UL Verification Services Inc.

Tested By:

MIKE ANTOLA
CONSUMER TECHNOLOGY DIVISION
PROJECT LEAD
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2009.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 1285 Walt Whitman Rd. Melville, NY 11747, USA.

UL Melville is accredited by NVLAP, Laboratory Code 100255-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/1002550.htm.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	± 3.3 dB
Radiated Disturbance, 30 to 1000 MHz	± 4.00 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac, NFC & ANT+.

GENERAL INFORMATION

Power Requirements	Main EUT powered from a rechargeable Lithium battery. Charger is powered from a 100-240 VAC / 50-60 Hz source.
List of frequencies generated or used by the EUT	27.12MHz, 19.2MHz, 37.4MHz, 0.032MHz

5.2. PRELIMINARY TEST CONFIGURATIONS

The EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Y orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y orientation.

5.3. MODE(S) OF OPERATION

Mode	Description
Idle	Receive mode

5.4. MODIFICATIONS

No modifications were made during testing.

5.5. DETAILS OF TESTED SYSTEM

SUPPORT EQUIPMENT & PERIPHERALS

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Compaq	CQ56-115DX	CNF1134NS0	DoC
Earphone	Sony	MH410c	14071EB60060A84	DoC
MHL cable	Sony	N/A	N/A	N/A
Monitor	NEC	LCD19V-BK	N/A	N/A
Mouse	Dell	M-UK	N/A	N/A
Keyboard	Dell	RT7D50	N/A	N/A

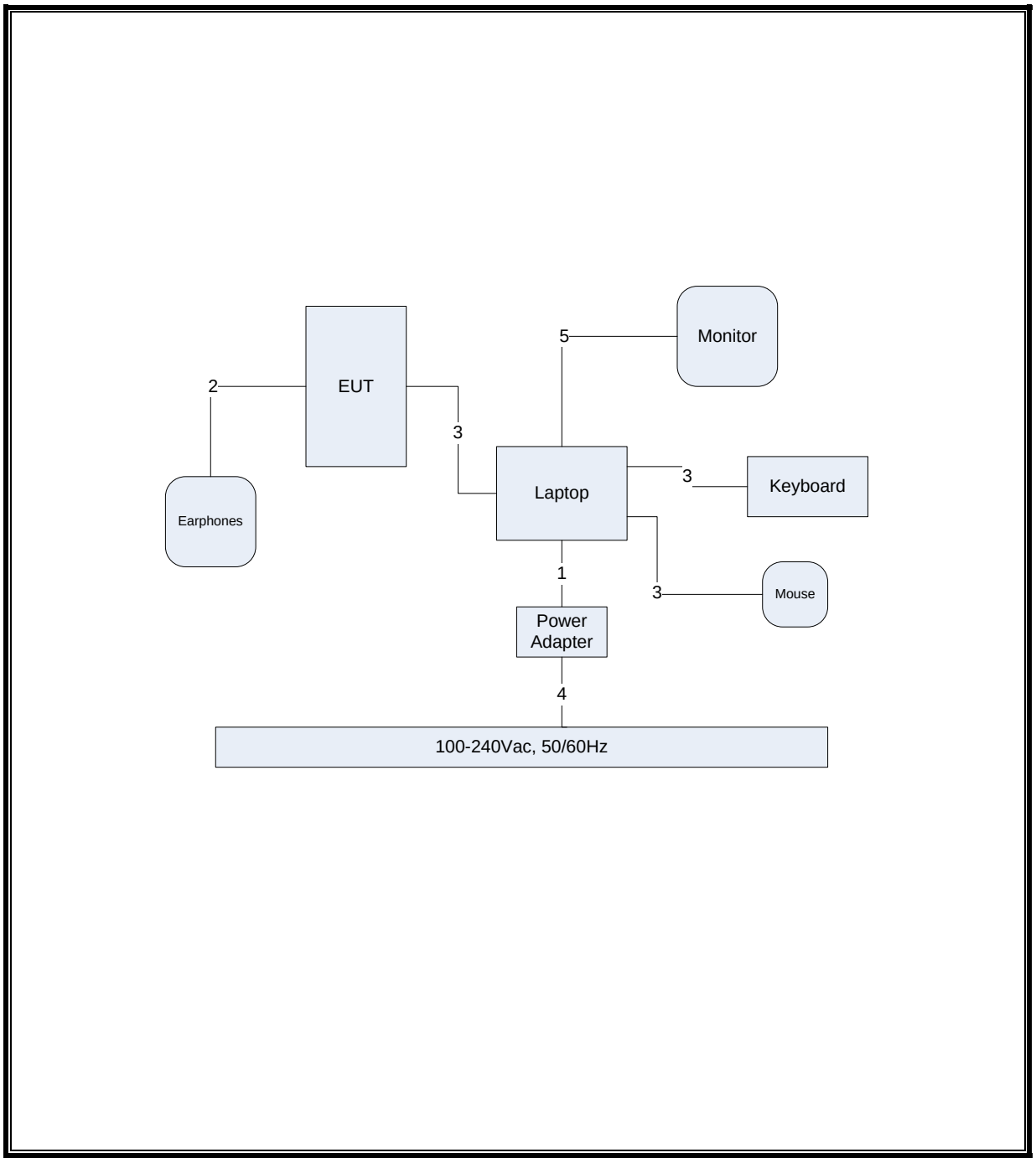
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	1	Power	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1m	N/A
3	USB	1	Mini-USB	Shielded	2m	HDMI cable
4	AC Power	1	IEC	Unshielded	1m	N/A
5	Video	1	VGA	Shielded	1m	N/A

TEST SETUP

The EUT is installed in a typical configuration. Test software exercised the EUT.

TEST SETUP DIAGRAM



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Radiated Emissions					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
30-1000MHz					
EMI Receiver	Rohde & Schwarz	ESCI7	75141	2014-01-29	2015-01-31
Hybrid Antenna	Sunol	JB-1	84106	2014-02-19	2015-02-19
Switch Driver	HP	11713A	ME7A-627	N/A	N/A
System Controller	Sunol Sciences	SC99V	44396	N/A	N/A
Camera Controller	Panasonic	WV-CU254	44395	N/A	N/A
RF Switch Box	UL	1	44398	N/A	N/A
Measurement Software	UL	Version 9.5	44740	N/A	N/A
Multimeter	Fluke	87V	44547	2014-01-29	2015-01-31

Conducted Emissions					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due
Conducted Emissions – GP 1					
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081	2014-01-28	2015-01-31
LISN	EMCO	3825/2R	ME5-790	N/A	N/A
LISN	Solar	9252-50-R-24-BNC	ME5A-636	2014-01-28	2015-01-31
Switch Driver	HP	11713A	44397	N/A	N/A
RF Switch Box	UL	4	44404	N/A	N/A
Measurement Software	UL	Version 9.5	44736	N/A	N/A
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43734	2014-03-24	2016-03-24
Multimeter	Fluke	87V	44547	2014-01-29	2015-01-31

7. APPLICABLE LIMITS AND TEST RESULTS

7.1. RADIATED EMISSIONS

TEST PROCEDURE

ANSI C63.4

The highest clock frequency generated or used in the EUT is 37.4 MHz, therefore the frequency range was investigated from 30 MHz to 1000 MHz.

LIMIT

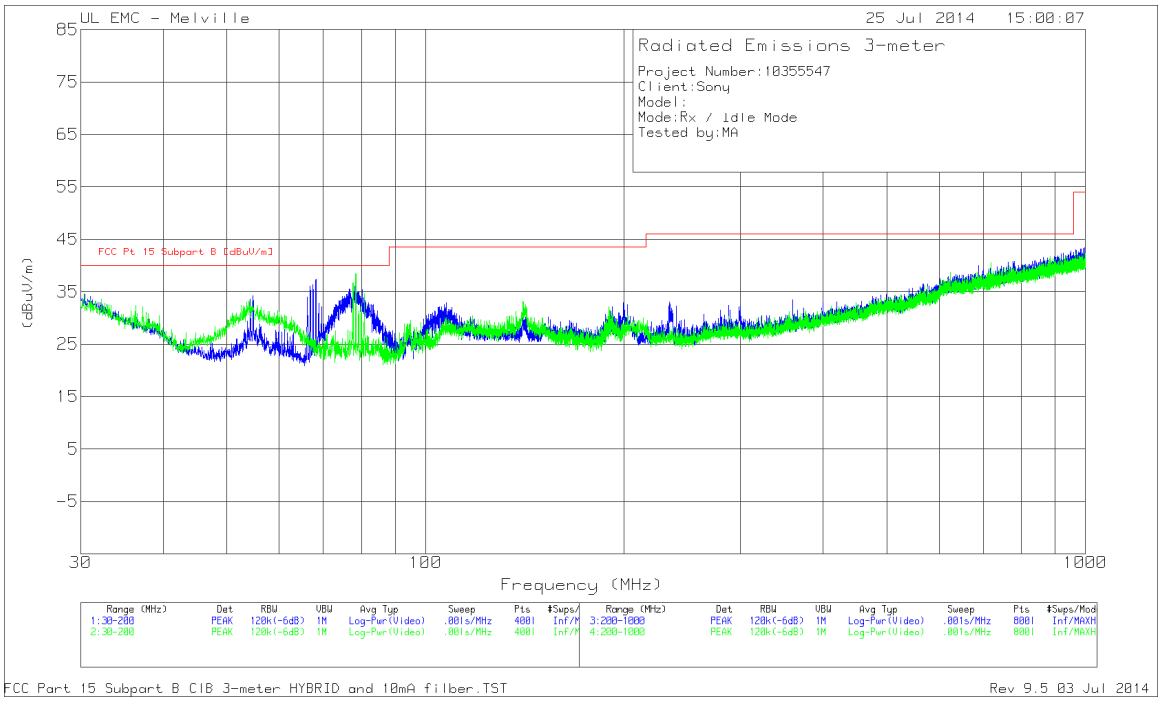
§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dBµV/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54
Note: The lower limit shall apply at the transition frequency.	

RESULTS

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)

HORIZONTAL & VERTICAL PLOT



HORIZONTAL & VERICAL DATA

Frequency (MHz)	Meter Reading (dBuV)	Det	AF-84106 [dB/m]	GL [dB]	Corrected Reading (dBuV/m)	FCC Pt 15 Subpart B [dBuV/m]	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
68.3955	11.4	QP	8.3	1.1	20.8	40	-19.2	295	193	H
77.2735	18.83	QP	8	1.2	28.03	40	-11.97	305	240	H
55.2855	14.88	QP	7.2	1	23.08	40	-16.92	330	354	H
68.796	11.02	QP	8.3	1.1	20.42	40	-19.58	309	210	H
53.9025	19	QP	7.6	1	27.6	40	-12.4	340	133	V
77.282	15.17	QP	7.5	1.2	23.87	40	-16.13	337	234	V

QP - Quasi-Peak detector

7.2. AC MAINS LINE CONDUCTED EMISSIONS

TEST PROCEDURE

ANSI C63.4

LIMIT

§15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

RESULTS

6 WORST EMISSIONS

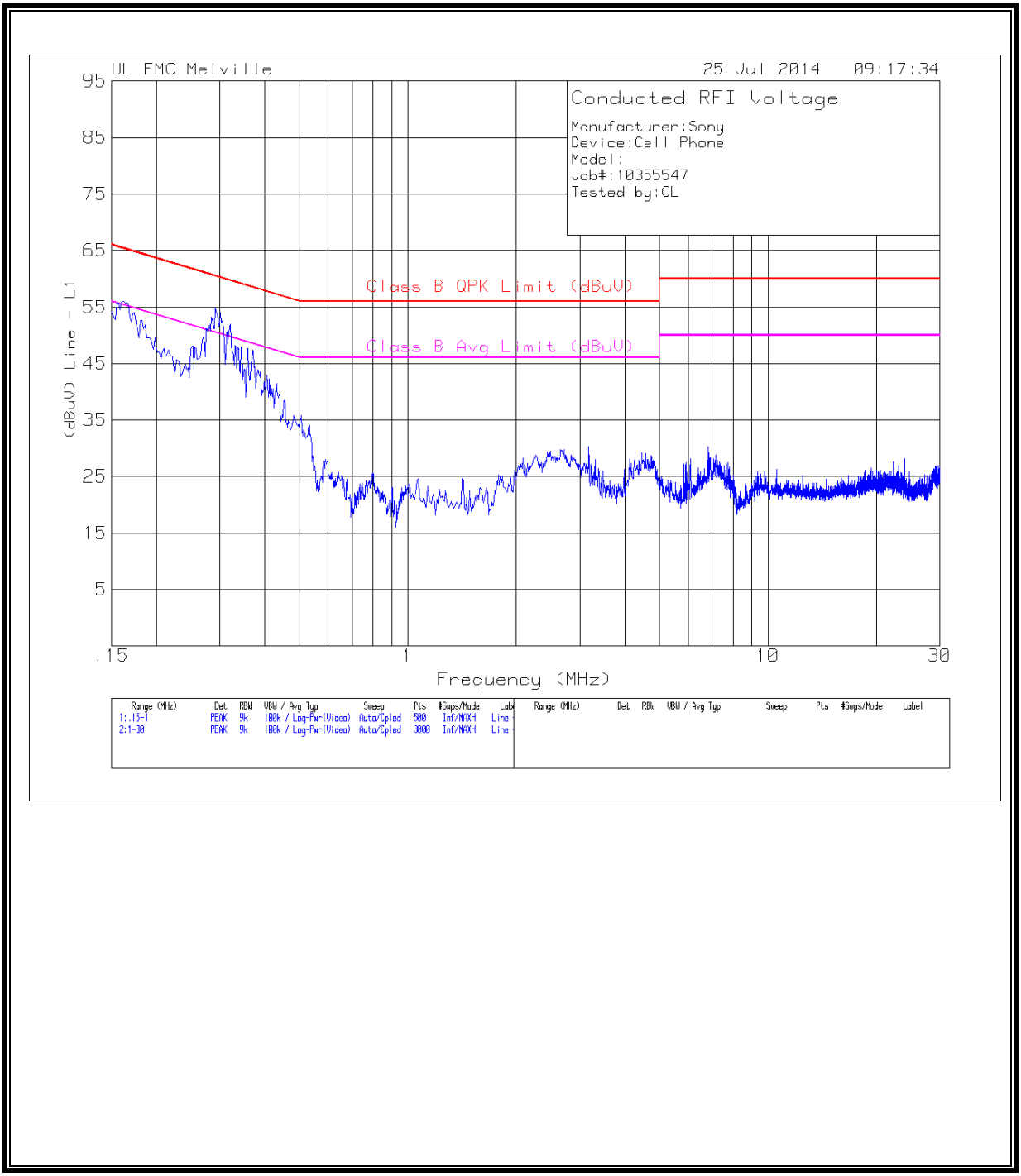
Frequency (MHz)	Meter Reading (dBuV)	Det	Line 1 G/L (dB)	Corrected Reading (dBuV)	Class B QPK Limit (dBuV)	Margin (dB)	Class B Avg Limit (dBuV)	Margin (dB)
.16192	46.03	PK	10	56.03	65.36	-9.33	-	-
.29138	44.87	PK	10	54.87	60.48	-5.61	-	-
.7973	15.54	PK	10	25.54	56	-30.46	-	-
2.71157	19.62	PK	10.1	29.72	56	-26.28	-	-
4.46182	18.99	PK	10.2	29.19	56	-26.81	-	-
6.80193	19.95	PK	10.3	30.25	60	-29.75	-	-
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**Line 2 G/L (dB)**	**Corrected Reading (dBuV)**	**Class B QPK Limit (dBuV)**	**Margin (dB)**	**Class B Avg Limit (dBuV)**	**Margin (dB)**
.16192	45.85	PK	10.1	55.95	65.36	-9.41	-	-
.30331	45.25	PK	10	55.25	60.15	-4.9	-	-
.88247	20.24	PK	10.1	30.34	56	-25.66	-	-
2.73091	21.77	PK	10.1	31.87	56	-24.13	-	-
4.44248	17.62	PK	10.2	27.82	56	-28.18	-	-
9.31611	20.88	PK	10.6	31.48	60	-28.52	-	-

PK - Peak detector

Frequency (MHz)	Meter Reading (dBuV)	Det	Line 1 G/L (dB)	Corrected Reading (dBuV)	Class B QPK Limit (dBuV)	Margin (dB)	Class B Avg Limit (dBuV)	Margin (dB)
.15845	33.72	CAV	10	43.72	-	-	55.54	-11.82
.29206	18.41	CAV	10	28.41	-	-	50.47	-22.06
.79823	3.06	CAV	10	13.06	-	-	46	-32.94
2.71411	8.41	CAV	10.1	18.51	-	-	46	-27.49
4.4646	7.88	CAV	10.2	18.08	-	-	46	-27.92
6.80498	5.56	CAV	10.3	15.86	-	-	50	-34.14
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**Line 2 G/L (dB)**	**Corrected Reading (dBuV)**	**Class B QPK Limit (dBuV)**	**Margin (dB)**	**Class B Avg Limit (dBuV)**	**Margin (dB)**
.16063	35.9	CAV	10	45.9	-	-	55.43	-9.53
.30306	21.48	CAV	10	31.48	-	-	50.16	-18.68
.88172	3.98	CAV	10.1	14.08	-	-	46	-31.92
2.73127	8.24	CAV	10.1	18.34	-	-	46	-27.66
4.45476	7.69	CAV	10.2	17.89	-	-	46	-28.11
9.3174	5.32	CAV	10.6	15.92	-	-	50	-34.08

CAV - CISPR average detection

LINE 1 RESULTS



LINE 2 RESULTS