Shenzhen Huatongwei International Inspection Co., Ltd.



1/F,Bldg 3,Hongfa Hi-tech Industrial Park,Genyu Road,Tianliao,Gongming,Shenzhen,China Phone:86-755-26748019 Fax:86-755-26748089 http://www.szhtw.com.cn



FCC REPORT

Report Reference No:	TRE1705022406	R/C: 87855			
FCC ID:	2AAA6-LS50				
Applicant's name:	SENWA MEXICO,S.A.DE C.V				
Address:	Av.Javier Barros Sierra 540,Tori SANTA FE DELEGACION, ALV				
Manufacturer:	Senwa Mobile HK Itd				
Address:	Room 910, International Trade Centre 11-19 Sha Tsui Road, Tsuer Wan, NT, HK				
Test item description:	Mobile Phone				
Trade Mark:	SENWA				
Model/Type reference:	LS50				
Listed Model(s):	-				
Standard::	47 CFR FCC Part 15 Subpart E ANSI C63.4: 2014	3 - Unintentional Radiators			
Date of receipt of test sample:	May.24, 2017				
Date of testing:	May.25, 2017- Jun.19, 2017				
Date of issue:	Jun.20, 2017				
Result:	Pass				
Compiled by		C , l.			
(position+printed name+signature).:	File administrators Candy Liu	Candy Liu			
Supervised by					
(position+printed name+signature).:	Project Engineer Lion Cai	Ción Car			
Approved by		11			
(position+printed name+signature).:	RF Manager Hans Hu	Hours ru			
Testing Laboratory Name:	Shenzhen Huatongwei Interna	tional Inspection Co., Ltd.			
Address:	1/F, Bldg 3, Hongfa Hi-tech Indu Gongming, Shenzhen, China	ıstrial Park, Genyu Road, Tianliao,			
Shenzhen Huatongwei International Inspec	ction Co., Ltd. All rights reserve	ed.			

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen Huatongwei International Inspection Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen Huatongwei International Inspection Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Report No.: TRE1705022406 Page: 2 of 19 Issued: 2017-06-20

Contents

	TEST STANDARDS AND REPORT VERSION	3
-	Test Standards	3
•	Report version	3
	TEST DESCRIPTION	4
	SUMMARY	5
	Client Information	5
	Product Description	5
	EUT operation mode	6
	EUT configuration	6
	Configuration of Tested System	7
	TEST ENVIRONMENT	8
	Address of the test laboratory	8
	Test Facility	8
	Equipments Used during the Test	9
	Environmental conditions	9
	Statement of the measurement uncertainty	10
	TEST CONDITIONS AND RESULTS	11
	Conducted Emissions Test	11
	Radiated Emission Test	14
	TEST SETUP PHOTOS OF THE EUT	18
	EXTERNAL AND INTERNAL PHOTOS OF THE EUT	19

Report No.: TRE1705022406 Page: 3 of 19 Issued: 2017-06-20

1. Test standards and Report version

1.1. Test Standards

The tests were performed according to following standards:

47 CFR FCC Part 15 Subpart B - Unintentional Radiators

ANSI C63.4: 2014 – 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 40GHz

1.2. Report version

Version No.	Date of issue	Description
00	Jun.20, 2017	Original

Report No.: TRE1705022406 Page: 4 of 19 Issued: 2017-06-20

2. Test Description

Test Item	FCC Rule	Result
Conducted Emissions Test	15.107	Pass
Radiated Emission Test	15.109	Pass

Note: The measurement uncertainty is not included in the test result.

Report No.: TRE1705022406 Page: 5 of 19 Issued: 2017-06-20

3. SUMMARY

3.1. Client Information

Applicant:	SENWA MEXICO,S.A.DE C.V
Address:	Av.Javier Barros Sierra 540,Torre I,Planta 5, COL.LOMAS DE SANTA FE DELEGACION, ALVARO OBREGON, Mexico
Manufacturer:	Senwa Mobile HK Itd
Address:	Room 910, International Trade Centre 11-19 Sha Tsui Road, Tsuen Wan, NT, HK

3.2. Product Description

Name of EUT:	Mobile Phone	
Trade Mark:	SENWA	
Model No.:	LS50	
Listed Model(s):	-	
Power supply:	DC 3.8V From internal battery	
Adaptar information.	Input:100-240Va.c., 50/60Hz, 0.15A Max	
Adapter information:	Output: 5Vd.c., 1000mA	

Report No.: TRE1705022406 Page: 6 of 19 Issued: 2017-06-20

3.3. EUT operation mode

Test mode	Playing Video	Connect to PC (Down loading)	Camera	Adapter
1				
2		•		
3				

Note:

1. ■ is operation mode.

Pre-scan above all test mode, found below test mode which it was worse case mode.

Test item	Test mode (Worse case mode)	
Conducted emission	Mode 2	
Radiated emission	Mode 2	

3.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

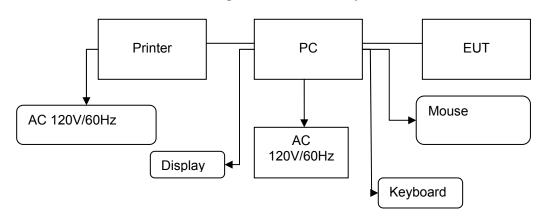
- supplied by the manufacturer
- supplied by the lab

Length (m):	
Shield:	
Detachable :	
Manufacturer:	
Model No.:	-

Report No.: TRE1705022406 Page: 7 of 19 Issued: 2017-06-20

3.5. Configuration of Tested System

Configuration of Tested System



Equipment Used in Tested System

	Equipment Used in Tested System							
No.	Equipment	Manufacturer	Model No.	Serial No.	Length	shielded/unshielded	Notes	
1	PC	DELL	DIMEN SION E520	1RNN42X	1	1	DOC	
2	Printer	ESPOn	C3990	C3990A	1	1	DOC	
3	Mouse	DELL	MO56U OA	G0E02SY7	1.00m	unshielded	DOC	
4	Display	DELL	1707FPt	CN-OFC237-71618- 65G-AAKC	1	1	DOC	
5	Keyboard	DELL	L100	CNRH65665890726 009L	/	1	DOC	
6	USB Cable (EUT to PC)	ITALCOM GROUP	USB 2.0	N/A	0.80m	unshielded	N/A	
7	USB Cable (Printer to PC)	Genshuo	USB 2.0	N/A	1.20m	unshielded	N/A	
8	Power line	1	/	N/A	1.00m	unshielded	N/A	

Report No.: TRE1705022406 Page: 8 of 19 Issued: 2017-06-20

4. TEST ENVIRONMENT

4.1. Address of the test laboratory

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.

Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China Phone: 86-755-26748019 Fax: 86-755-26748089

4.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 3902.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 317478

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 317478.

IC-Registration No.: 5377B

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377B.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

Report No.: TRE1705022406 Page: 9 of 19 Issued: 2017-06-20

4.3. Equipments Used during the Test

Condu	Conducted Emission						
Item	em Test Equipment Manufacturer Model No. Serial No. Last Cal.						
1	EMI TEST RECEIVER	Rohde & Schwarz	ESCI	100106	2016/11/13		
2	ARTIFICIAL MAINS	Rohde & Schwarz	ESH2-Z5	100028	2016/11/13		
3	PULSE LIMITER	Rohde & Schwarz	ESHSZ2	100044	2016/11/13		
4	EMI TEST SOFTWARE	Rohde & Schwarz	ES-K1	N/A	N/A		

Radia	Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	
1	ULTRA-BROADBAND ANTENNA	ShwarzBeck	VULB9163	538	2016/11/13	
2	EMI TEST RECEIVER	Rohde & Schwarz	ESI 26	100009	2016/11/13	
3	EMI TEST Software	Audix	E3	N/A	N/A	
4	TURNTABLE	MATURO	TT2.0		N/A	
5	ANTENNA MAST	MATURO	TAM-4.0-P		N/A	
6	EMI TEST Software	Rohde & Schwarz	ESK1	N/A	N/A	
7	ULTRA-BROADBAND ANTENNA	Rohde&Schwarz	HL562	100015	2016/11/13	
8	Amplifer	Sonoma	310N	E009-13	2016/11/13	
9	JS amplifer	Rohde & Schwarz	JS4-00101800- 28-5A	F201504	2016/11/13	
11	TURNTABLE	ETS	2088	2149	N/A	
12	ANTENNA MAST	ETS	2075	2346	N/A	
13	HORN ANTENNA	Rohde&Schwarz	HF906	100039	2016/11/13	

The calibration interval was one year.

4.4. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35°C
lative Humidity:	30~60 %
Air Pressure:	950~1050mba

Report No.: TRE1705022406 Page: 10 of 19 Issued: 2017-06-20

4.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods — Part 4: Uncertainty in EMC Measurements" and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.24 dB	(1)
Radiated Emission	1~18GHz	5.16 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.39 dB	(1)

⁽¹⁾ This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Report No.: TRE1705022406 Page: 11 of 19 Issued: 2017-06-20

5. TEST CONDITIONS AND RESULTS

5.1. Conducted Emissions Test

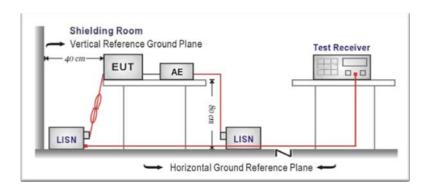
LIMIT

FCC CFR Title 47 Part 15 Subpart B Section 15.107:

Frequency range (MHz)	Limit (dBuV)					
Frequency range (will iz)	Quasi-peak	Average				
0.15-0.5	66 to 56*	56 to 46*				
0.5-5	56	46				
5-30	60	50				

^{*} Decreases with the logarithm of the frequency.

TEST CONFIGURATION



TEST PROCEDURE

- 1. The EUT was setup according to ANSI C63.4-2014.
- 2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
- 3. The EUT and simulators are connected to the main power through a line impedancestabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for themeasuring equipment.
- 4. The peripheral devices are also connected to the main power through aLISN. (Please refer to the block diagram of the test setup and photographs)
- 5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor,was individually connected through a LISN to the input power source.
- 6. The excess length of the power cord between the EUT and the LISN receptacle were foldedback and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
- 7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHzusing a receiver bandwidth of 9 kHz.
- 8. During the above scans, the emissions were maximized by cable manipulation.

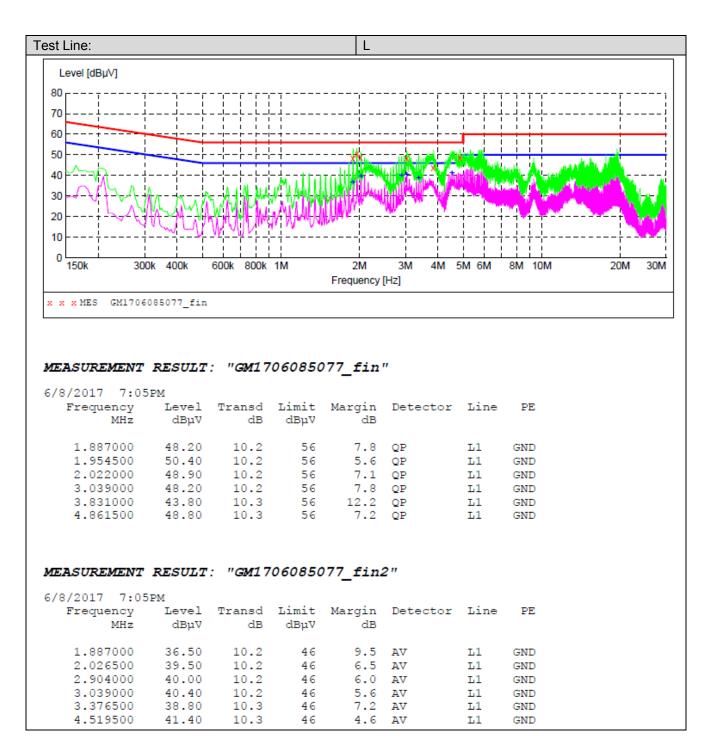
TEST MODE:

Please refer to the clause 3.3

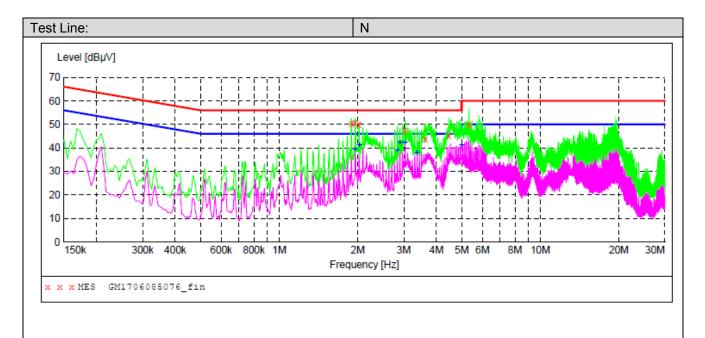
TEST RESULTS

Note:Transd=Cable lose+ PULSE LIMITER factor+ ARTIFICIAL MAINS factor; Margin= Limit -Level

Report No.: TRE1705022406 Page: 12 of 19 Issued: 2017-06-20



Report No.: TRE1705022406 Page: 13 of 19 Issued: 2017-06-20



MEASUREMENT RESULT: "GM1706085076_fin"

6/8/2017 7:03	2PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
1.891500	50.40	10.2	56	5.6	QP	N	GND
1.954500	50.50	10.2	56	5.5	QP	N	GND
2.026500	50.10	10.2	56	5.9	QP	N	GND
3.034500	47.40	10.2	56	8.6	QP	N	GND
3.642000	43.90	10.3	56	12.1	QP	N	GND
4.461000	45.10	10.3	56	10.9	QP	N	GND
5.334000	50.10	10.3	60	9.9	QP	N	GND

MEASUREMENT RESULT: "GM1706085076_fin2"

6/8/2017	7:02PM						
Frequen M	cy Level Hz dBµV		Limit dBµV	Margin dB	Detector	Line	PE
1.9545	00 39.50	10.2	46	6.5	AV	N	GND
2.0265	00 41.30	10.2	46	4.7	AV	N	GND
2.8365	00 39.10	10.2	46	6.9	AV	N	GND
2.9040	00 42.40	10.2	46	3.6	AV	N	GND
3.0390	00 42.20	10.2	46	3.8	AV	N	GND
3.3720	00 37.80	10.3	46	8.2	AV	N	GND
4.9965	00 41.20	10.3	46	4.8	AV	N	GND

Report No.: TRE1705022406 Page: 14 of 19 Issued: 2017-06-20

5.2. Radiated Emission Test

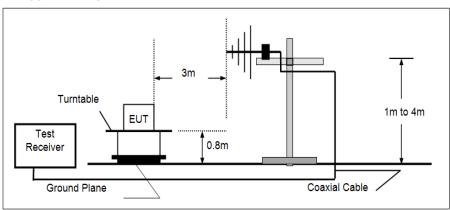
LIMIT

FCC CFR Title 47 Part 15 Subpart B Section 15.109

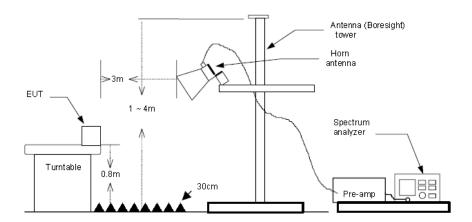
Frequency	Limit (dBuV/m @3m)	Value	
30MHz-88MHz	40.00	Quasi-peak	
88MHz-216MHz	43.50	Quasi-peak	
216MHz-960MHz	46.00	Quasi-peak	
960MHz-1GHz	54.00	Quasi-peak	
Above 1GHz	54.00	Average	
Above 10112	74.00	Peak	

TEST CONFIGURATION

> 30MHz ~ 1GHz



Above 1GHz



TEST PROCEDURE

- 1. The EUT was tested according to ANSI C63.4:2014.
- The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated360 degrees to determine the position of the maximum emission level.
- 3. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters.
- 4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. Thisis repeated for both horizontal and vertical polarization of the antenna.
- 5. Use the following spectrum analyzer settings
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Below 1GHz, RBW=120KHz, VBW=300KHz, Sweep=auto, Detector function=peak, Trace=max hold; If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, theemission measurement will be repeated using the quasi-peak detector and reported.
 - (3) Above 1GHz, RBW=1MHz, VBW=3MHz

Report No.: TRE1705022406 Page: 15 of 19 Issued: 2017-06-20

<u>TEST MODE:</u>

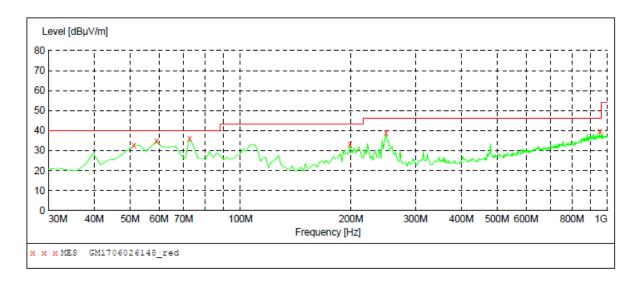
TEST RESULTS

Please refer to the clause 3.3

Note: Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

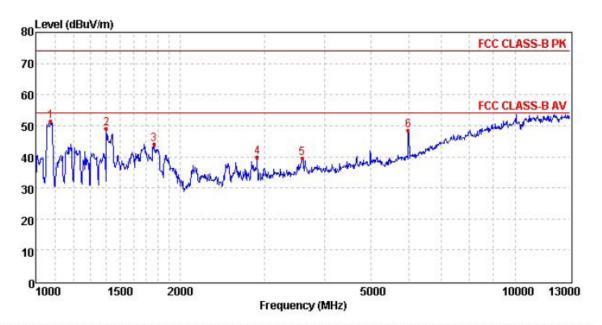
Report No.: TRE1705022406 Page: 16 of 19 Issued: 2017-06-20

Vertical



MEASUREMENT RESULT: "GM1706026148_red"

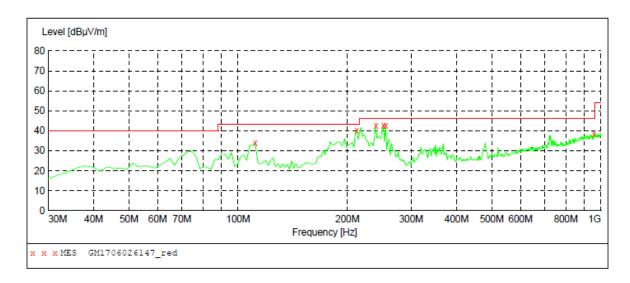
6/2/2017 9:48PM										
Frequency MHz	Level dBµV/m		Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization		
51.340000	32.80	-8.8	40.0	7.2	QP	100.0	228.00	VERTICAL		
59.100000	34.90	-9.8	40.0	5.1	QP	100.0	13.00	VERTICAL		
72.680000	36.20	-14.1	40.0	3.8	QP	100.0	40.00	VERTICAL		
198.780000	33.30	-9.8	43.5	10.2	QP	100.0	348.00	VERTICAL		
249.220000	38.80	-8.4	46.0	7.2	QP	100.0	13.00	VERTICAL		
953.440000	39.70	7.3	46.0	6.3	QP	100.0	27.00	VERTICAL		



Mark	Frequency	Reading	Antenna	Cable	Preamp	Level	Limit	Over	Remark
	MHz	dBuV/m	dB	dB	dB	dBuV/m	dBuV/m	limit	
1	1074.46	58.27	25.43	4.38	36.63	51.45	74.00	-22.55	Peak
2	1402.95	54.77	25.90	5.01	36.46	49.22	74.00	-24.78	Peak
3	1762.71	49.75	25.33	5.89	37.06	43.91	74.00	-30.09	Peak
4	2899.26	42.35	28.50	7.42	38.30	39.97	74.00	-34.03	Peak
5	3596.32	40.41	29.29	8.26	38.28	39.68	74.00	-34.32	Peak
6	5976.11	40.75	32.45	10.66	35.43	48.43	74.00	-25.57	Peak

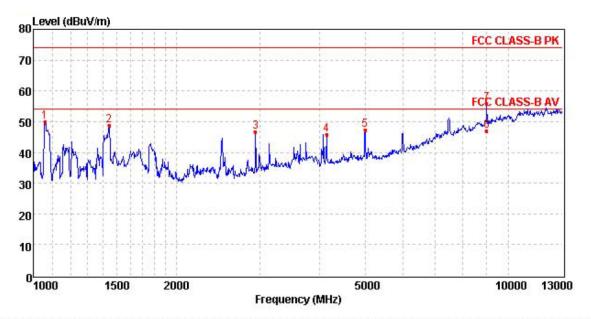
Report No.: TRE1705022406 Page: 17 of 19 Issued: 2017-06-20

Horizontal



MEASUREMENT RESULT: "GM1706026147_red"

6/2/2017 9:45	5PM							
Frequency MHz	Level dBµV/m		Limit dBµV/m	_	Det.	Height cm	Azimuth deg	Polarization
111.480000	33.90	-11.0	43.5	9.6	QP	300.0	216.00	HORIZONTAL
212.360000	40.30	-10.4	43.5	3.2	QP	100.0	207.00	HORIZONTAL
239.520000	42.50	-8.8	46.0	3.5	QP	100.0	219.00	HORIZONTAL
251.160000	42.50	-8.4	46.0	3.5	QP	100.0	167.00	HORIZONTAL
255.040000	42.70	-8.3	46.0	3.3	QP	100.0	178.00	HORIZONTAL
957.320000	38.40	7.3	46.0	7.6	OP	100.0	288.00	HORIZONTAL



Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	1058.05	56.83	25.38	4.34	36.64	49.91	74.00	-24.09	Peak
2	1443.09	54.40	25.86	5.12	36.52	48.86	74.00	-25.14	Peak
3	2936.68	48.94	28.54	7.45	38.27	46.66	74.00	-27.34	Peak
4	4141.19	44.78	29.94	8.89	37.79	45.82	74.00	-28.18	Peak
5	4993.93	42.69	31.49	9.67	36.42	47.43	74.00	-26.57	Peak
6	9008.44	30.07	37.93	13.32	34.47	46.85	54.00	-7.15	Average
7	9008.44	39.16	37.93	13.32	34.47	55.94	74.00	-18.06	Peak

Report No.: TRE1705022406 Page: 18 of 19 Issued: 2017-06-20

6. Test Setup Photos of the EUT

Conducted Emission Connect to PC



Radiated Emission (30MHz-1GHz) Connect to PC



Radiated Emission (above 1GHz) Connect to PC



Report No.: TRE1705022406 Page: 19 of 19 Issued: 2017-06-20

7. External and Internal photos of the EUT

Reference to the test report No.: TRE1705022401.

.....End of Report.....