

FCC Part 15B

Measurement and Test Report

For

Shenzhen Chinaleap Electronics Co., Ltd.

3rd Floor, Shanshui Building B-Block, Yungu Innovation Zoo, Liuxian

Avenue, Nanshan D, Shenzhen, China

FCC ID: S95-ARMXXX

Test Standards: FCC Part 15 Subpart B

Product Description: Tablet PC

Tested Model: Miracle one

Report No.: STR13028134I-2

Tested Date: 2013-04-28 to 2013-05-08

Issued Date: 2013-05-13

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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Shenzhen Chinaleap Electronics Co., Ltd.
Address of applicant: 3rd Floor, Shanshui Building B-Block, Yungu Innovation Zoo, Liuxian Avenue, Nanshan D, Shenzhen, China
Manufacturer: Shenzhen Chinaleap Electronics Co., Ltd.
Address of manufacturer: 3rd Floor, Shanshui Building B-Block, Yungu Innovation Zoo, Liuxian Avenue, Nanshan D, Shenzhen, China

General Description of EUT	
Product Name:	Tablet PC
Trade Name:	
Model No.:	Miracle one
Adding Model(s):	Miracle Retina, Miracle fly, Micacle Seal, M7HD, S973, B3, D2, D4, W2, S750, S753
<i>Note: The test data is gathered from a production sample, provided by the manufacturer. The other model listed in the report has different appearance only of Miracle one without circuit and electronic construction changed, declared by the manufacturer</i>	

Technical Characteristics of EUT	
Rated Voltage:	Charging: DC 5V, Battery: 3.7V
Rated Current:	2A
Power Adaptor Model:	YN12W-0500200VU, Input: 100-240 50/60Hz,300mA Output: DC 5V,2A
Highest Internal Frequency:	1 GHz
Classification of ITE:	B
Support Interface:	Earphone Port, Micro USB Port

1.2 Test Standards

The following report is prepared on behalf of the Shenzhen Chinaleap Electronics Co., Ltd. in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205, 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, 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.

1.4 Test Facility

- **FCC – Registration No.: 994117**

SEM.Test Compliance Services 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 and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**

The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**

Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C (518101)

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark
TM1	Charging & Playing	Charging & Color Bar with 1kHz Video
TM2	Downloading	Reading & writing

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.0	Shielded	With Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	SAMSUNG	NP-R20	124V93FP30082V

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Ear Phone Cable	1.0	Unshielded	Without Ferrite

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.107 (a)	Conducted Emissions	Compliant
§ 15.109 (a)	Radiated Emissions	Compliant

N/A: not applicable

3. CONDUCTED EMISSIONS

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

3.2 Test Equipment List and Details

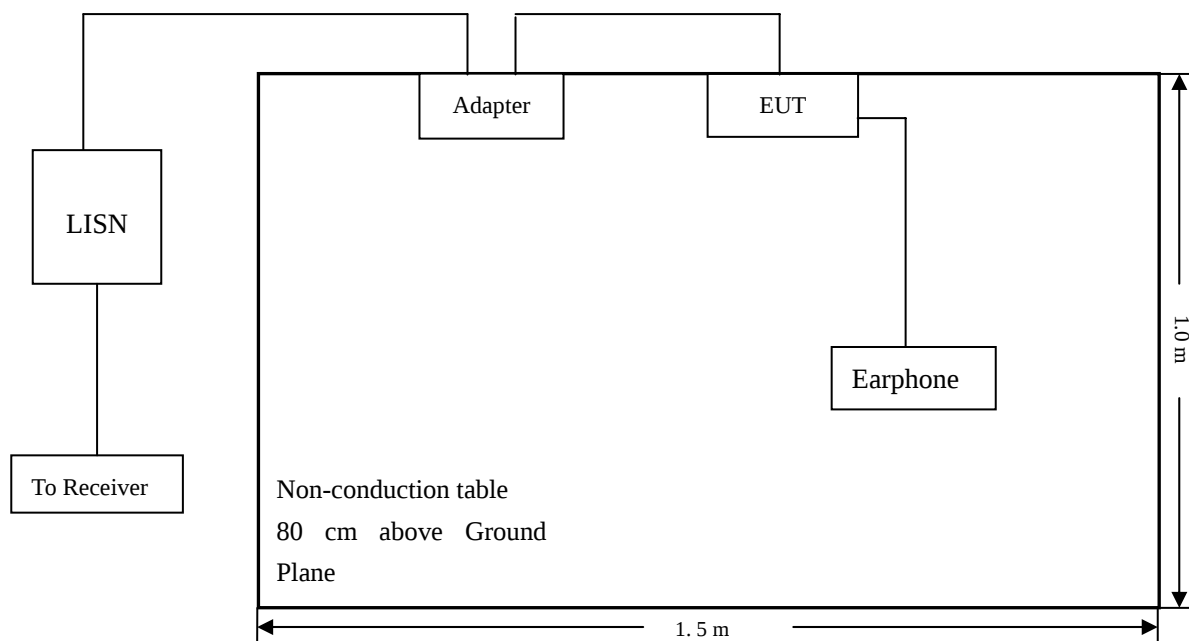
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2013-03-28	2014-03-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2013-03-28	2014-03-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2013-03-28	2014-03-27

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, 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.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

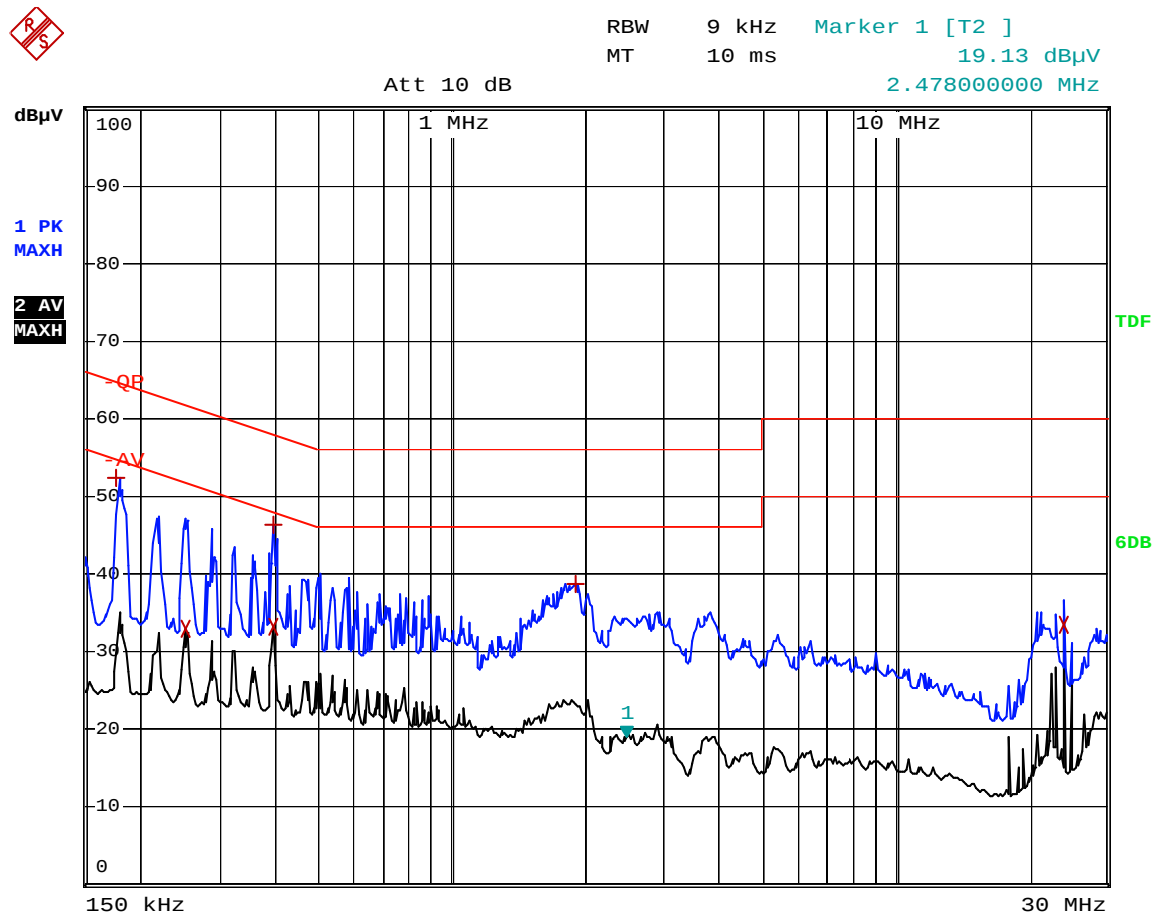
-11.72 dB at 0.394 MHz in the **Neutral, Peak** detector, 0.15-30MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

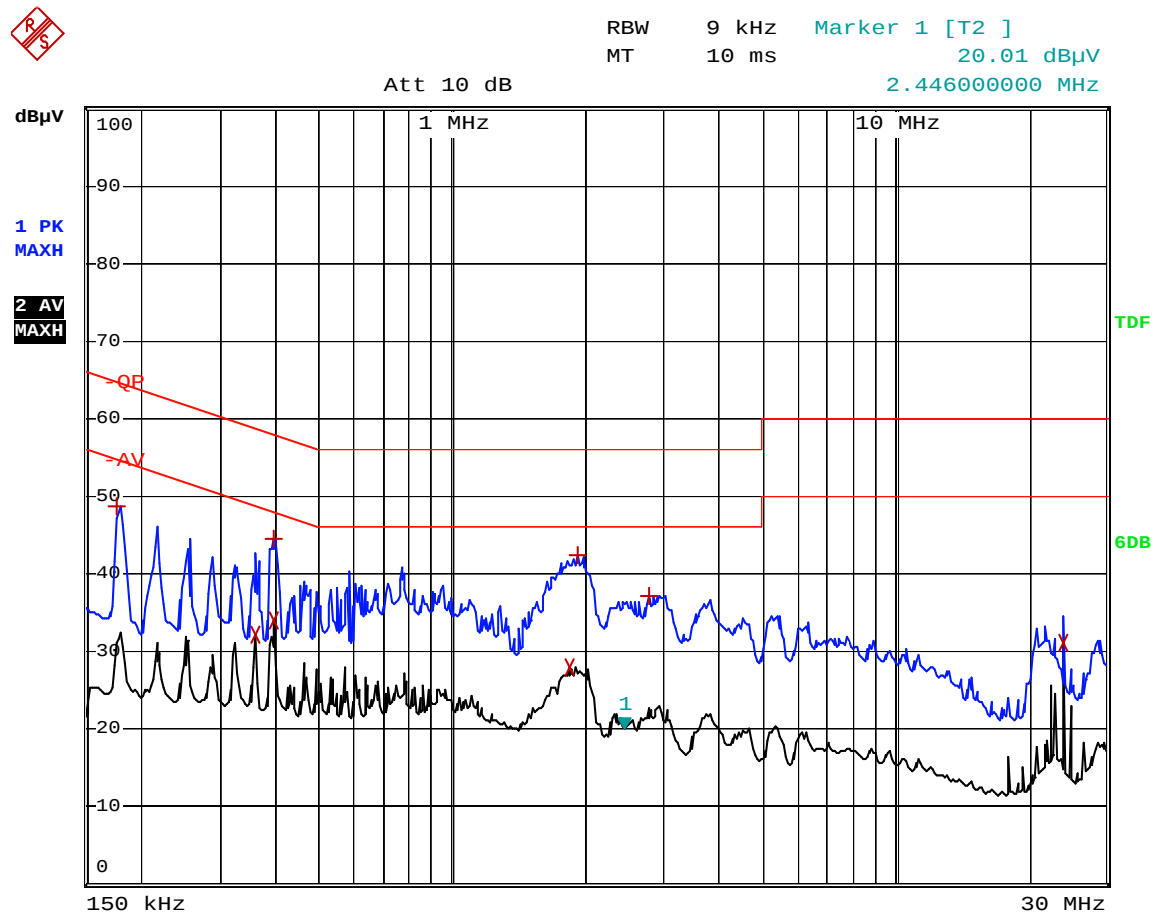
EUT: Tablet PC
Tested Model: Miracle one
Operating Condition: Charging & Color Bar with 1kHz Video
Comment: AC 120V/60Hz

Test Specification: Neutral



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	178 kHz	52.35	-12.22
2 Average	250 kHz	32.87	-18.87
1 Max Peak	394 kHz	46.25	-11.72
2 Average	394 kHz	33.17	-14.80
1 Max Peak	1.91 MHz	38.80	-17.19
2 Average	23.982 MHz	33.55	-16.44

Test Specification: Line



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Max Peak	178 kHz	48.69	-15.88
2 Average	358 kHz	32.12	-16.65
1 Max Peak	394 kHz	44.40	-13.57
2 Average	394 kHz	33.89	-14.08
2 Average	1.846 MHz	27.91	-18.08
1 Max Peak	1.918 MHz	42.31	-13.68
1 Max Peak	2.802 MHz	37.13	-18.86
2 Average	23.982 MHz	31.02	-18.97

4. RADIATED EMISSION

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

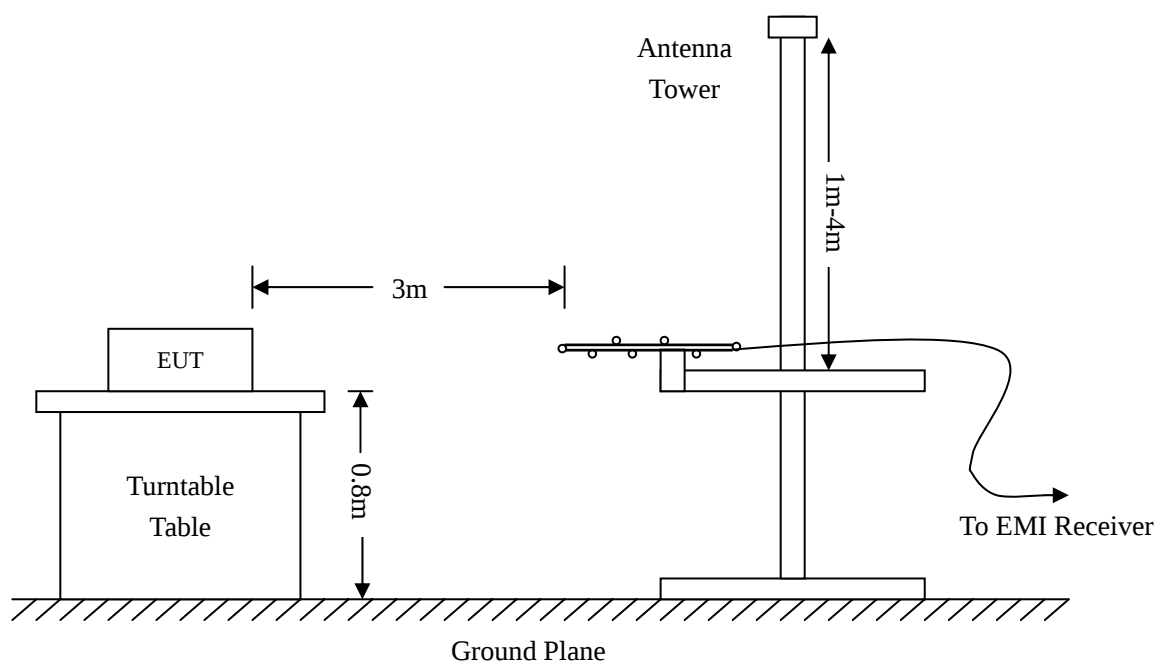
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2013-03-28	2014-03-27
EMI Test Receiver	R&S	ESVB	825471/005	2013-03-28	2014-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2013-03-28	2014-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-03-28	2014-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-02-25	2014-02-24
Horn Antenna	ETS	3117	00086197	2013-02-25	2014-02-24
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2013-02-25	2014-02-24

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.109 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.



4.4 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:

RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:

RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for a Class B device. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15.109(a) Limit}$$

4.6 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-2.27 dB at 153.7385MHz in the Vertical polarization, Charging &Playing Mode, 9 kHz to 5 GHz, 3Meters

-3.35 dB at 224.5192 MHz in the Horizontal polarization, Downloading Mode, 9 kHz to 5 GHz, 3Meters

Plot of Radiated Emissions Test Data

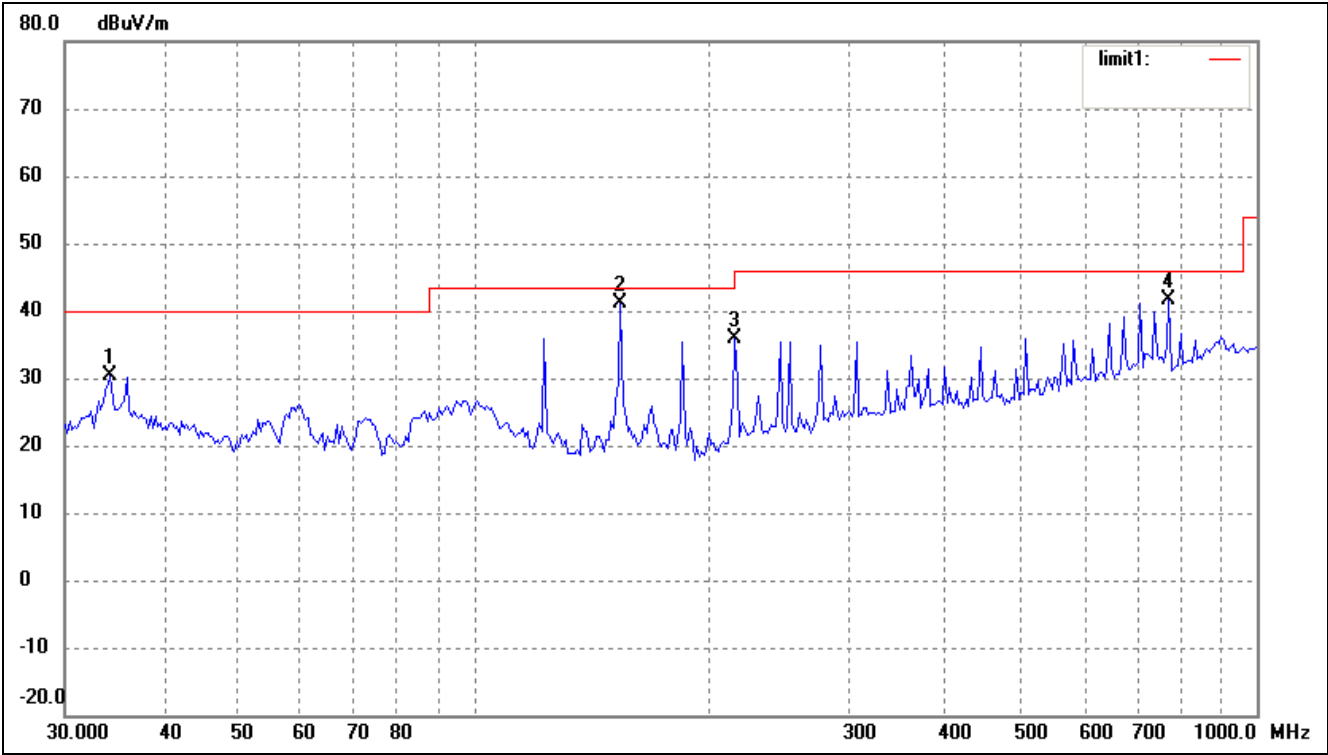
EUT: Tablet PC

Tested Model: Miracle one

Operating Condition: Charging & playing

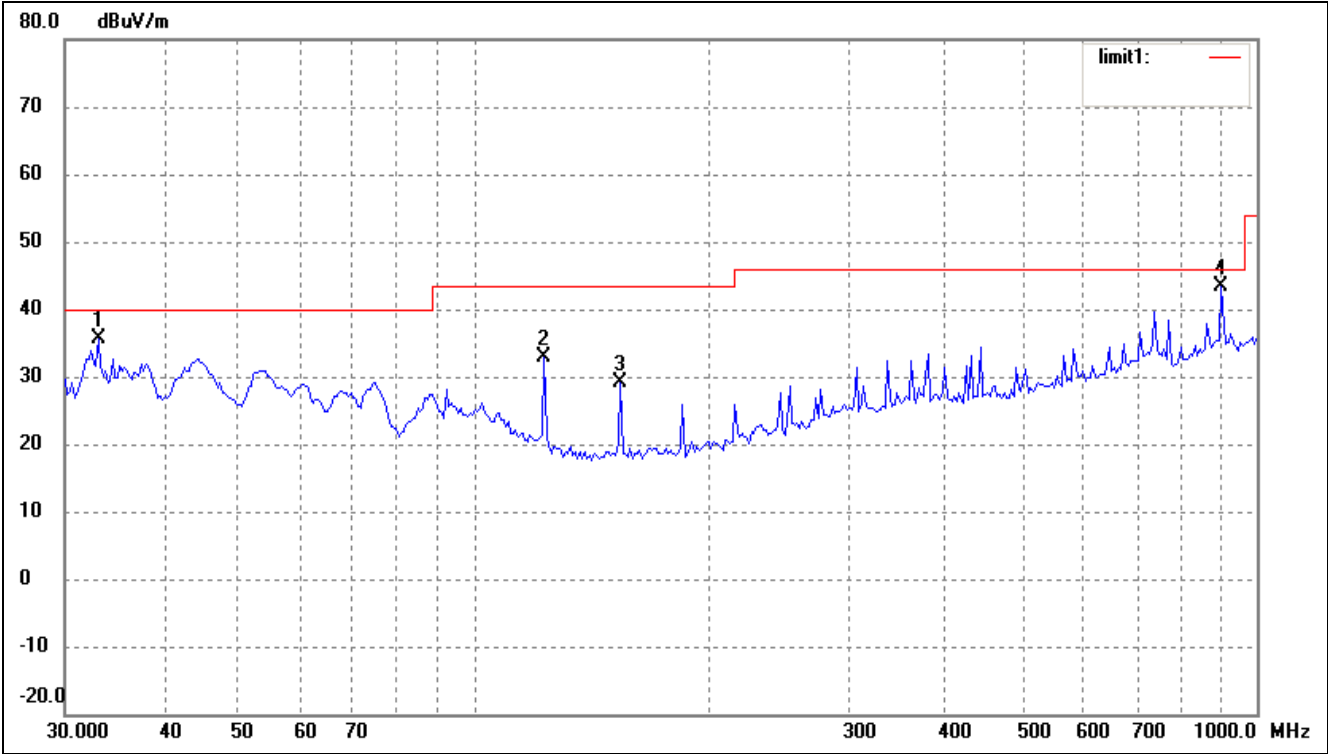
Comment: Playing Color Bar with 1kHz Video from TF card and U DISK

Test Specification: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	34.2760	21.74	8.76	30.50	40.00	-9.50	264	100	peak
2	153.7385	37.64	3.59	41.23	43.50	-2.27	113	200	peak
3	215.2678	30.36	5.62	35.98	43.50	-7.52	287	100	peak
4	771.4486	25.21	16.37	41.58	46.00	-4.42	185	200	peak

Test Specification: Vertical

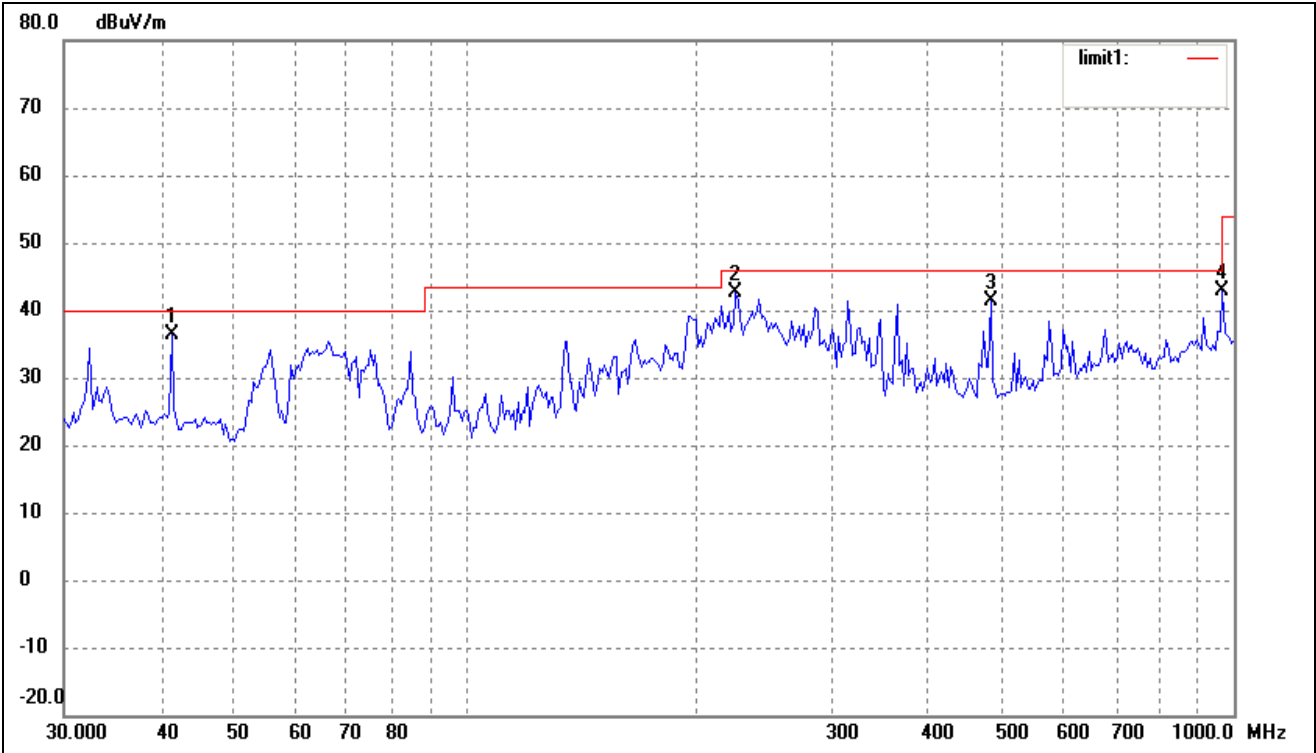


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.0950	27.01	8.56	35.57	40.00	-4.43	240	100	peak
2	122.8340	28.34	4.66	33.00	43.50	-10.50	187	100	peak
3	153.7385	25.63	3.59	29.22	43.50	-14.28	220	100	peak
4	900.1474	24.01	19.38	43.39	46.00	-2.61	359	100	peak

Plot of Radiated Emissions Test Data

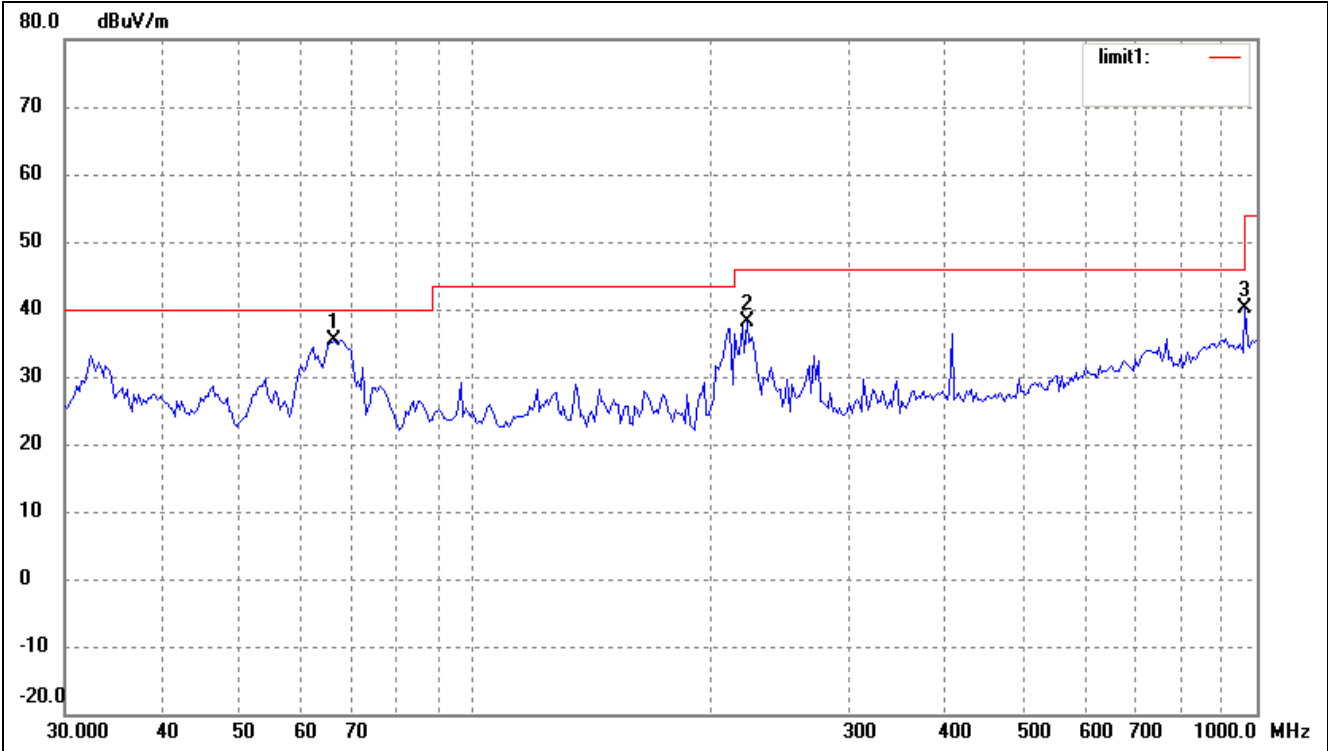
EUT: Tablet PC
Tested Model: Miracle one
Operating Condition: Downloading
Comment: Connect to PC

Test Specification: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	41.4215	27.10	9.24	36.34	40.00	-3.66	272	100	QP
2	224.5192	36.48	6.17	42.65	46.00	-3.35	179	100	QP
3	482.2155	29.78	11.49	41.27	46.00	-4.73	275	200	QP
4	965.5421	24.62	18.37	42.99	54.00	-11.01	113	200	peak

Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	66.2661	31.68	3.71	35.39	40.00	-4.61	134	100	QP
2	222.9501	32.06	6.08	38.14	46.00	-7.86	228	100	peak
3	965.5421	21.72	18.37	40.09	54.00	-13.91	162	100	peak

Plot of Radiated Emissions Test Data

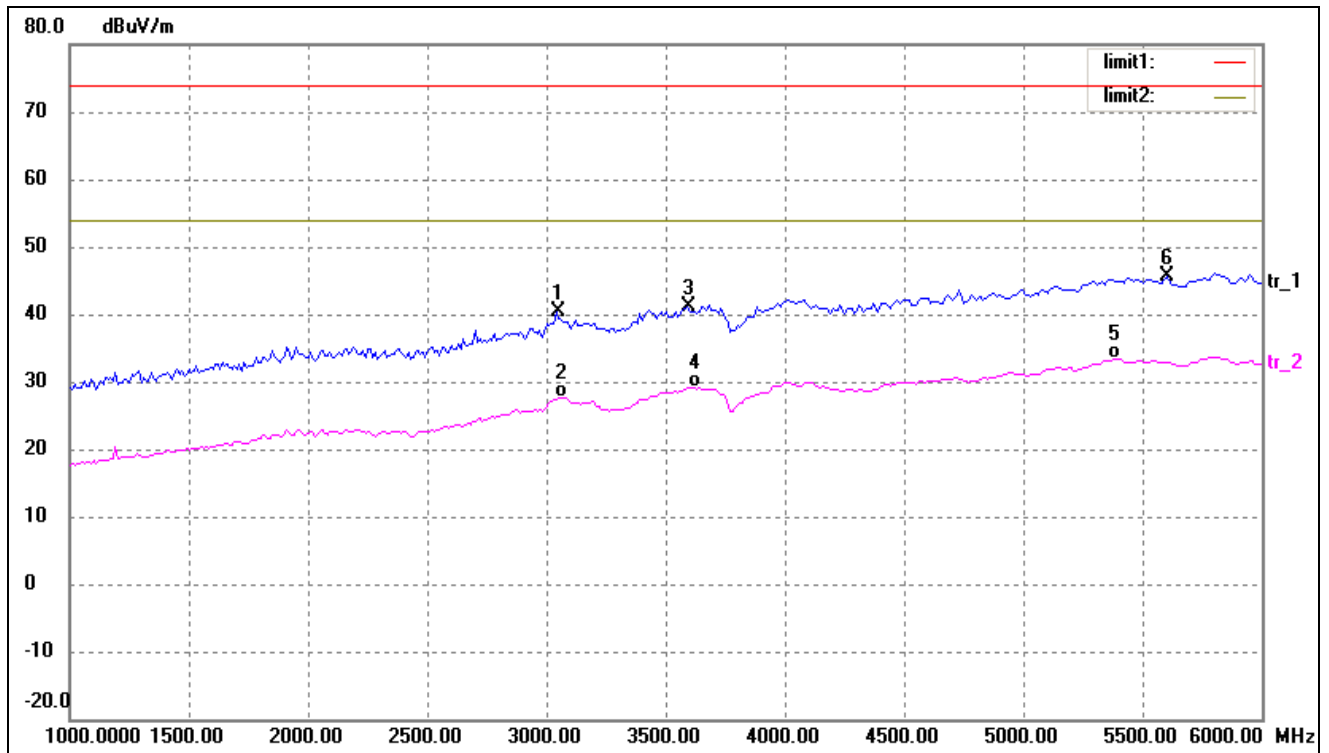
EUT: Tablet PC

Tested Model: Miracle one

Operating Condition: Charging & playing

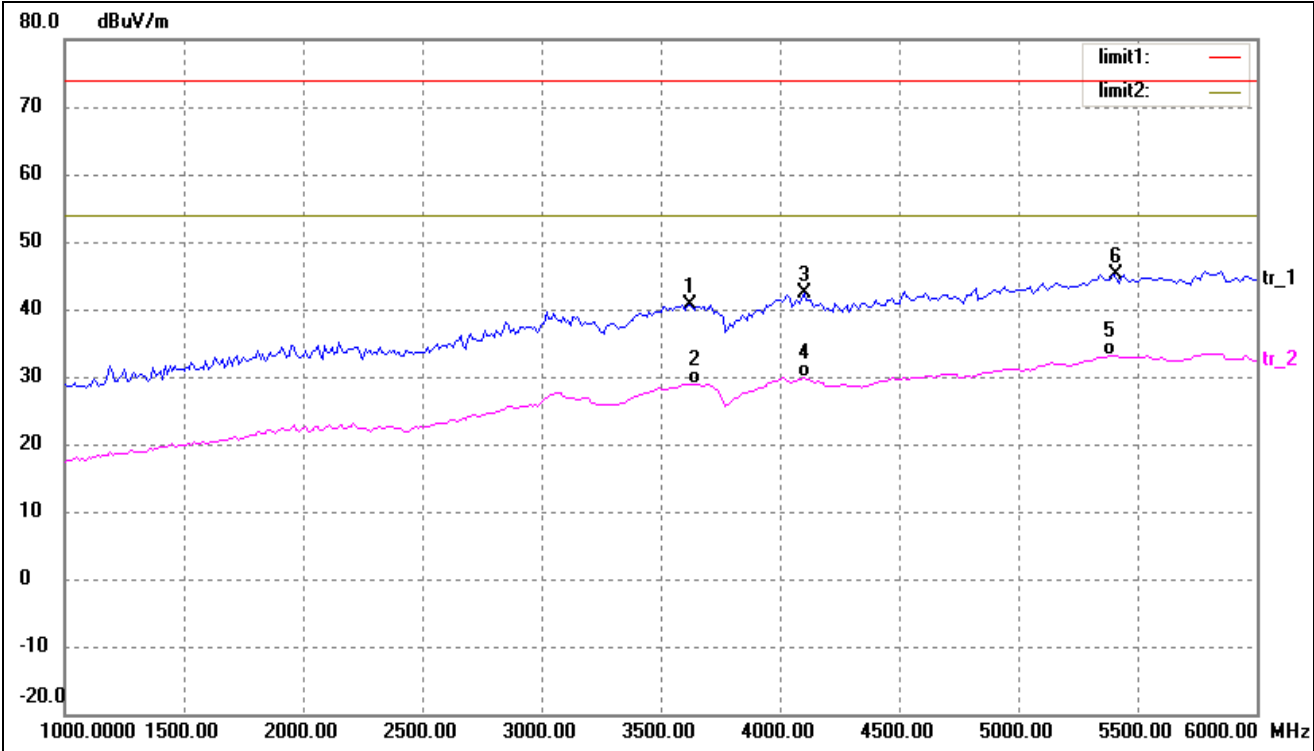
Comment: Playing Color Bar with 1kHz Video from TF card and U DISK

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	3047.966	48.01	-7.71	40.30	74.00	-33.70	58	150	peak
2	3069.889	35.25	-7.66	27.59	54.00	-26.41	326	100	AVG
3	3594.181	47.23	-6.22	41.01	74.00	-32.99	29	120	peak
4	3620.034	35.16	-6.13	29.03	54.00	-24.97	209	100	AVG
5	5388.429	35.32	-1.94	33.38	54.00	-20.62	359	200	AVG
6	5605.076	47.22	-1.61	45.61	74.00	-28.39	359	100	peak

Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	3620.034	46.86	-6.13	40.73	74.00	-33.27	51	100	peak
2	3646.072	35.02	-6.05	28.97	54.00	-25.03	308	100	AVG
3	4103.772	47.24	-4.93	42.31	74.00	-31.69	120	100	peak
4	4103.772	34.84	-4.93	29.91	54.00	-24.09	359	100	AVG
5	5388.429	35.09	-1.94	33.15	54.00	-20.85	359	100	AVG
6	5407.773	47.11	-1.87	45.24	74.00	-28.76	359	100	peak

Plot of Radiated Emissions Test Data

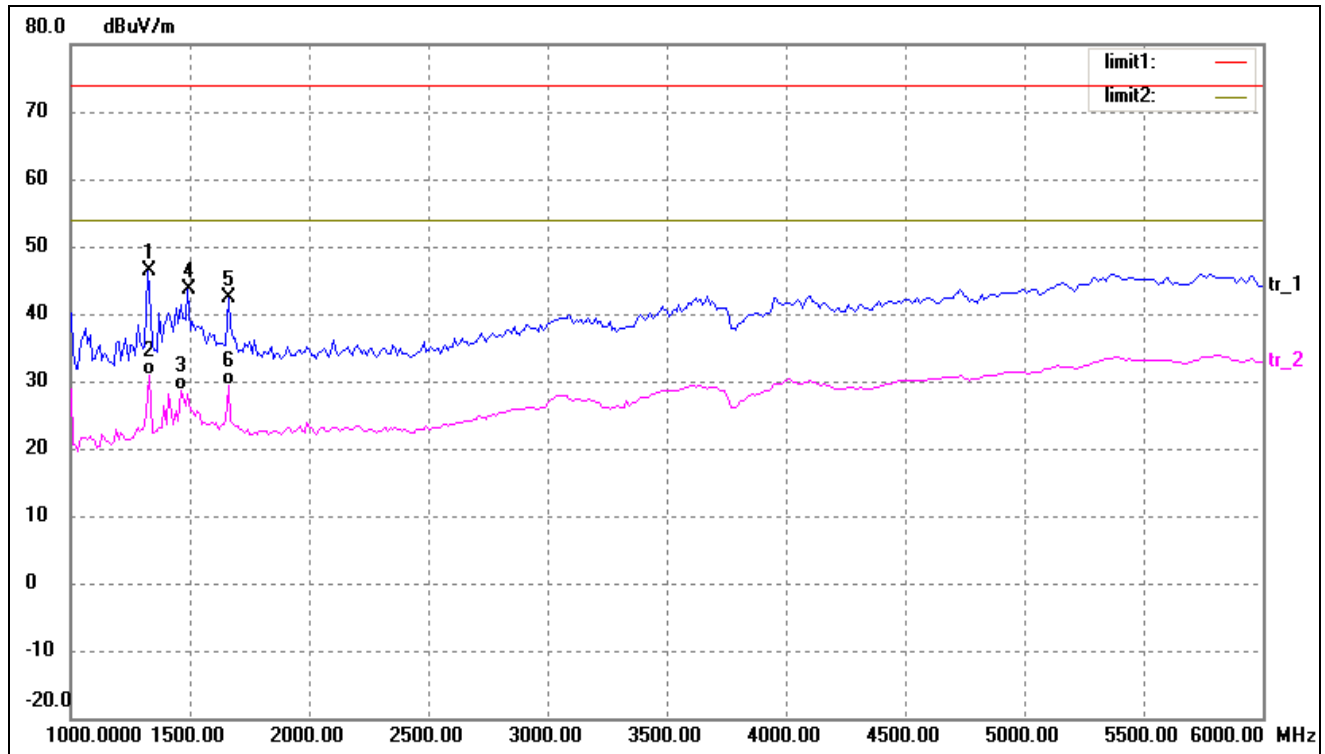
EUT: Tablet PC

Tested Model: Miracle one

Operating Condition: Downloading

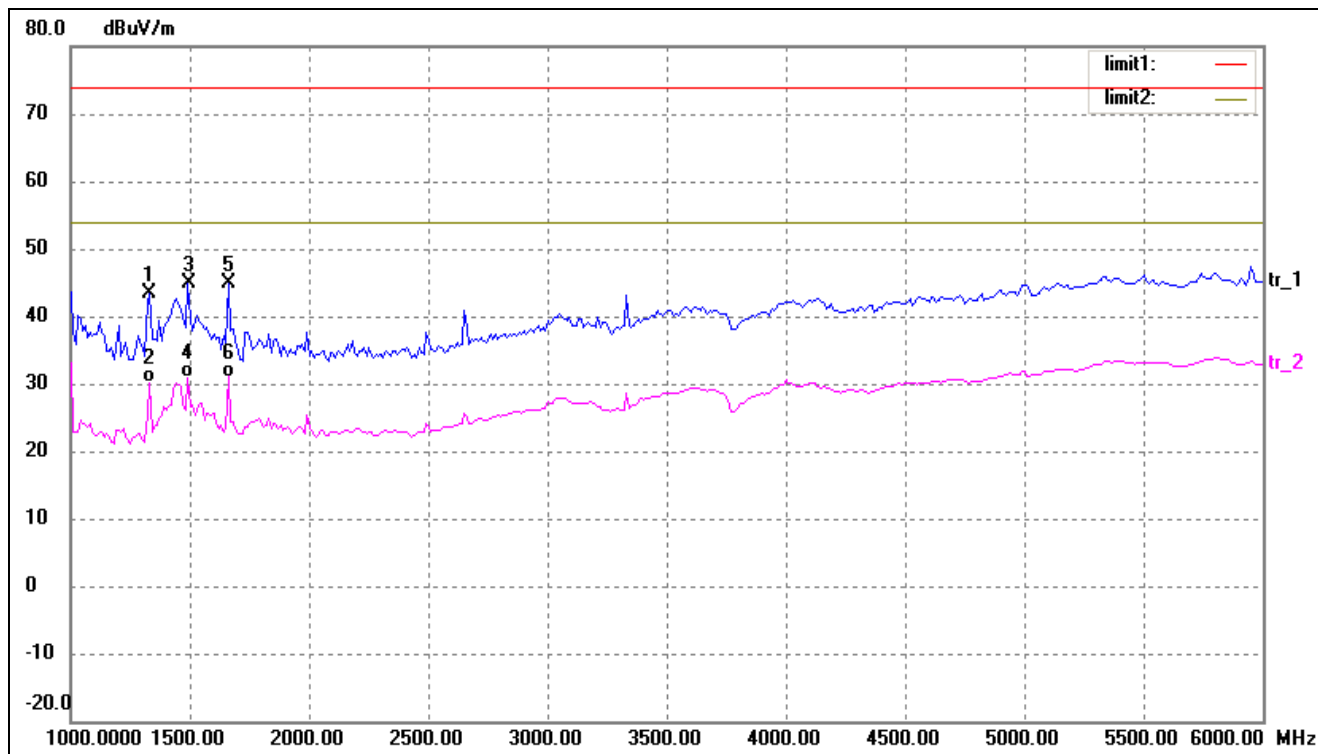
Comment:

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	1327.235	61.65	-15.36	46.29	74.00	-27.71	58	150	peak
2	1332.000	46.31	-15.34	30.97	54.00	-23.03	326	100	AVG
3	1467.318	43.28	-14.66	28.62	54.00	-25.38	29	120	AVG
4	1499.209	58.21	-14.50	43.71	74.00	-30.29	209	100	peak
5	1663.393	55.83	-13.56	42.27	74.00	-31.73	359	200	peak
6	1663.393	42.93	-13.56	29.37	54.00	-24.63	359	100	AVG

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	1332.000	58.75	-15.34	43.41	74.00	-30.59	51	100	peak
2	1332.000	45.56	-15.34	30.22	54.00	-23.78	308	100	AVG
3	1493.846	59.48	-14.53	44.95	74.00	-29.05	120	100	peak
4	1499.209	45.28	-14.50	30.78	54.00	-23.22	359	100	AVG
5	1663.393	58.38	-13.56	44.82	74.00	-29.18	359	100	peak
6	1663.393	44.56	-13.56	31.00	54.00	-23.00	359	100	AVG

Note: Testing is carried out with frequency rang 9kHz to 6GHz, which above 1GHz are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

The measurements greater than 20dB below the limit from 9kHz to 30MHz.

***** END OF REPORT *****