FCC Part 15B
Measurement and Test Report

For

UTC Fire & Security Americas Corporation, Inc.

1275 Red Fox Road Arden Hills, MN 55112 United States

FCC ID: B4ZMS7016

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	Table PC
Tested Model:	MS7016
Report No.:	STR16068226I-2
Tested Date:	2016-06-17 to 2016-07-01
Issued Date:	2016-07-01
Tested By:	Leo Lee / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	UTC Fire & Security Americas Corporation, Inc.
Address of applicant:	1275 Red Fox Road Arden Hills, MN 55112 United States
Manufacturer:	
Address of manufacturer:	YONES TOPTECH(CHINA) CO., LTD A-C310, Huameiju Bldg, Xinhu Rd., Bao`an Dist., Shenzhen, China

General Description of EUT	
Product Name:	Table PC
Trade Name:	UTC
Model No.:	MS7016
Adding Model(s):	T7, T8, T9, T10
Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model MS7016, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 3.7V by battery
Rated Current:	1A
Rated Power:	3.7W
Power Adapter Model:	JK050200-S04USA
	INPUT: 100-240Vac, 50/60Hz 0.5A; OUTPUT: 5V, 2000mA
Highest Internal Frequency:	1.5GHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the UTC Fire & Security Americas Corporation, Inc. 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 C63.4-2014, 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 40 GHz.

1.4 Test Facility

FCC – Registration No.: 934118

Shenzhen SEM.Test Technology 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 934118.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology 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 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd 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& Camera mode	/
TM2	Charging& TF card play mode	/
TM3	Download mode	/

EUT Cable List and Details

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

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC cable	1.17	Unshielded	With Core
USB cable	0.75	Unshielded	Without Core

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2016-06-04	2017-06-03
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2016-06-04	2017-06-03
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2016-06-04	2017-06-03
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2016-06-04	2017-06-03
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2016-06-04	2017-06-03
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2016-06-04	2017-06-03
SEMT-1042	Horn Antenna	ETS	3117	00086197	2016-06-04	2017-06-03
SEMT-1121	Horn Antenna	ETS	3116B	00088203	2016-06-04	2017-06-03
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2016-06-04	2017-06-03
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2016-06-04	2017-06-03
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2016-06-04	2017-06-03
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2016-06-04	2017-06-03

2. SUMMARY OF TEST RESULTS

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

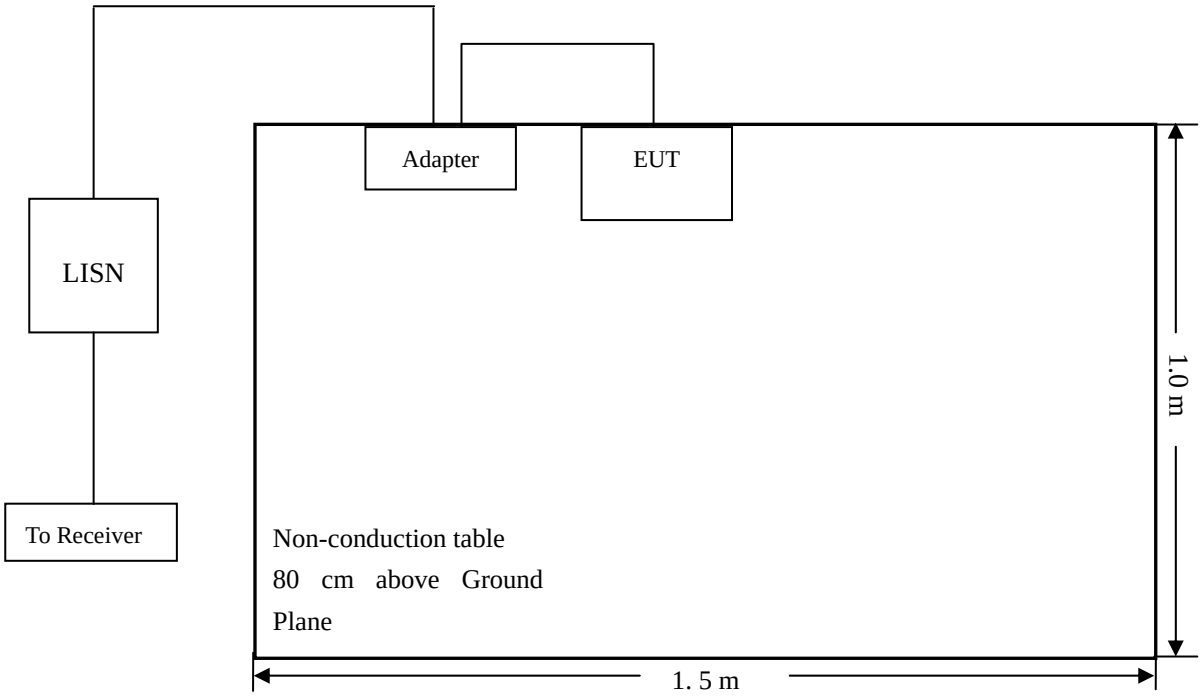
N/A: not applicable

3. Conducted Emissions

3.1 Test Procedure

Test is conducting under the description of 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 40 GHz.

3.2 Basic Test Setup Block Diagram



3.3 Environmental Conditions

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

3.4 Summary of Test Results/Plots

According to the data in section 3.5, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

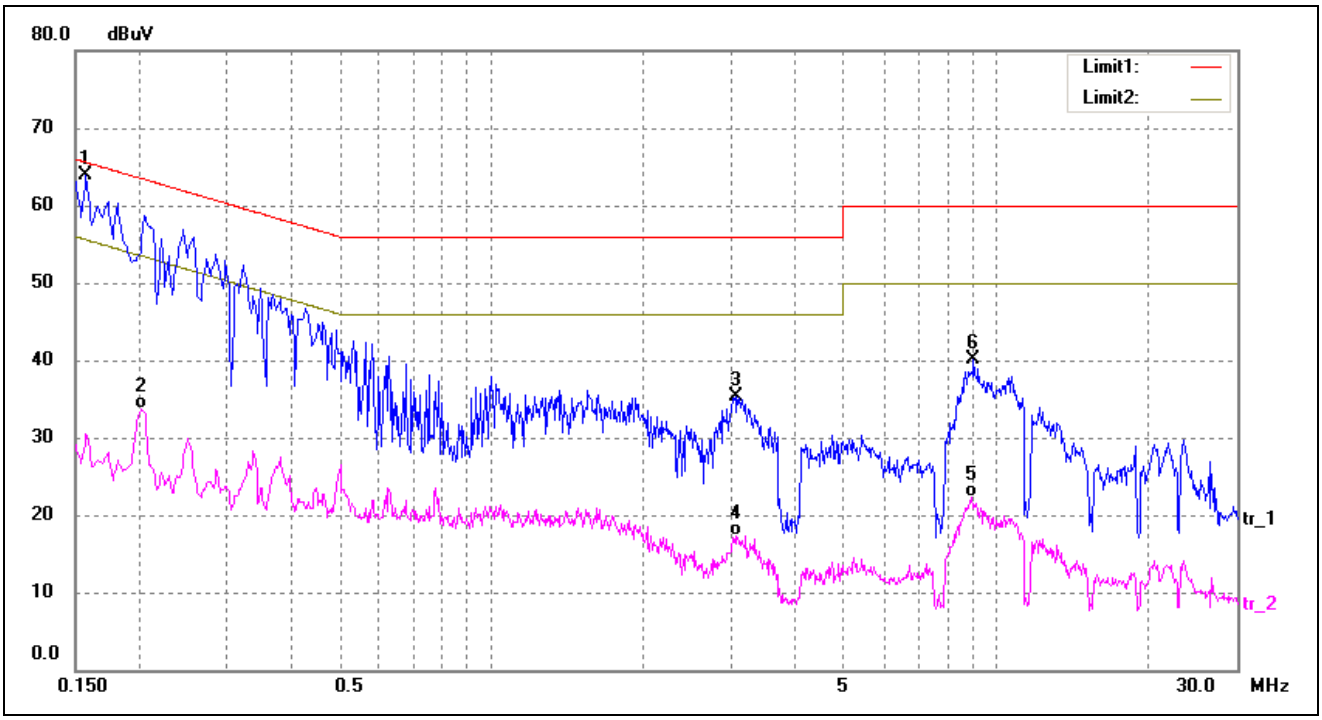
-1.75 dB at **0.158 MHz** in the **Neutral**, **Peak** detector, 0.15-30MHz, **Charging& Camera mode**

3.5 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

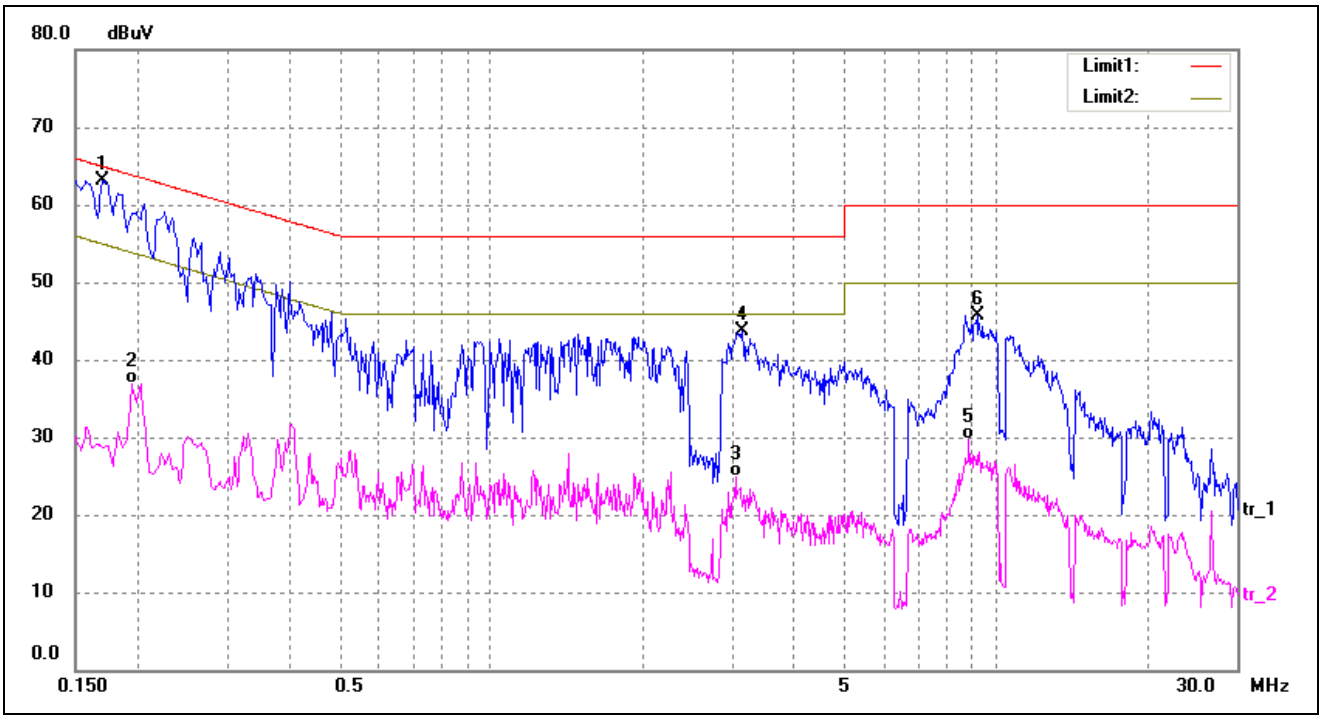
EUT: *Table PC*
Tested Model: *MS7016*
Operating Condition: *Charging& Camera mode*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1580	54.32	9.50	63.82	65.57	-1.75	peak
2	0.2020	24.27	9.50	33.77	53.53	-19.76	AVG
3	3.0420	25.36	9.97	35.33	56.00	-20.67	peak
4	3.0420	7.37	9.97	17.34	46.00	-28.66	AVG
5	8.9220	12.02	10.33	22.35	50.00	-27.65	AVG
6	9.0300	29.71	10.34	40.05	60.00	-19.95	peak

Test Specification: *Line*

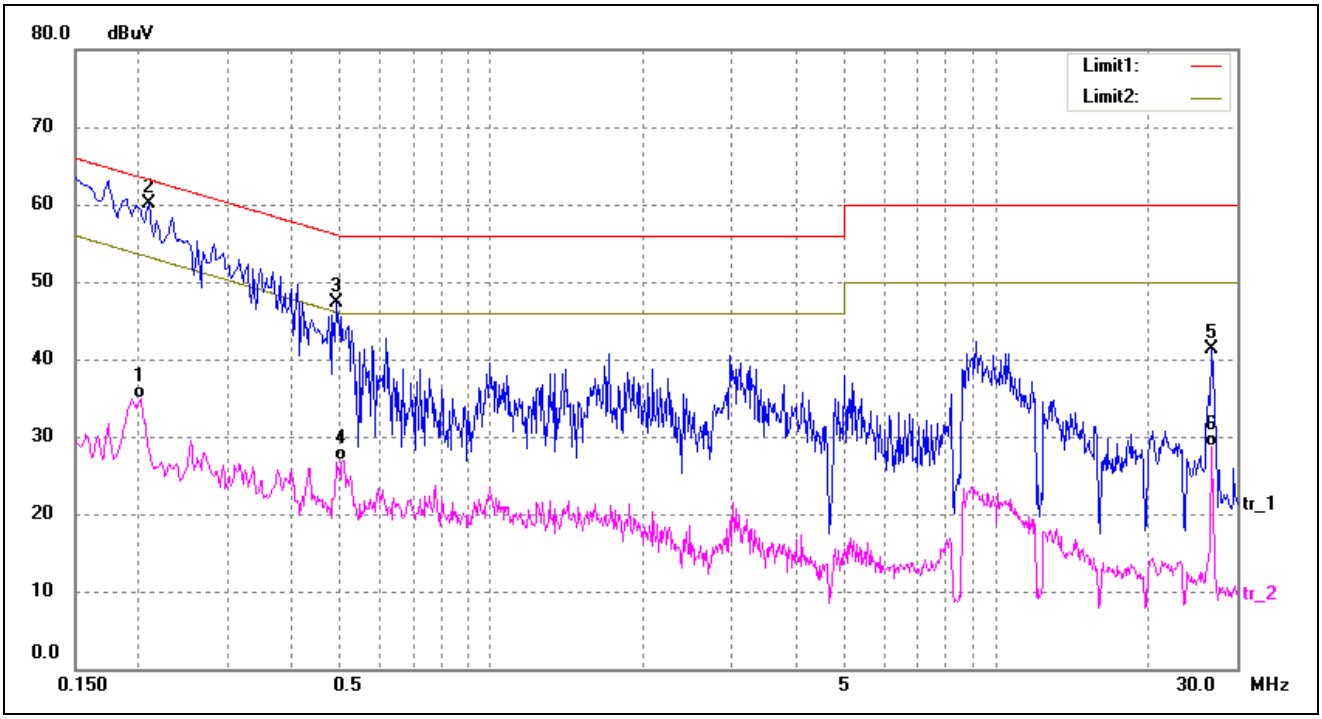


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1700	53.62	9.50	63.12	64.96	-1.84	peak
2	0.1940	27.39	9.50	36.89	53.86	-16.97	AVG
3	3.0460	15.00	9.97	24.97	46.00	-21.03	AVG
4	3.1420	33.77	9.98	43.75	56.00	-12.25	peak
5	8.8300	19.35	10.33	29.68	50.00	-20.32	AVG
6	9.1660	35.38	10.34	45.72	60.00	-14.28	peak

Plot of Conducted Emissions Test Data

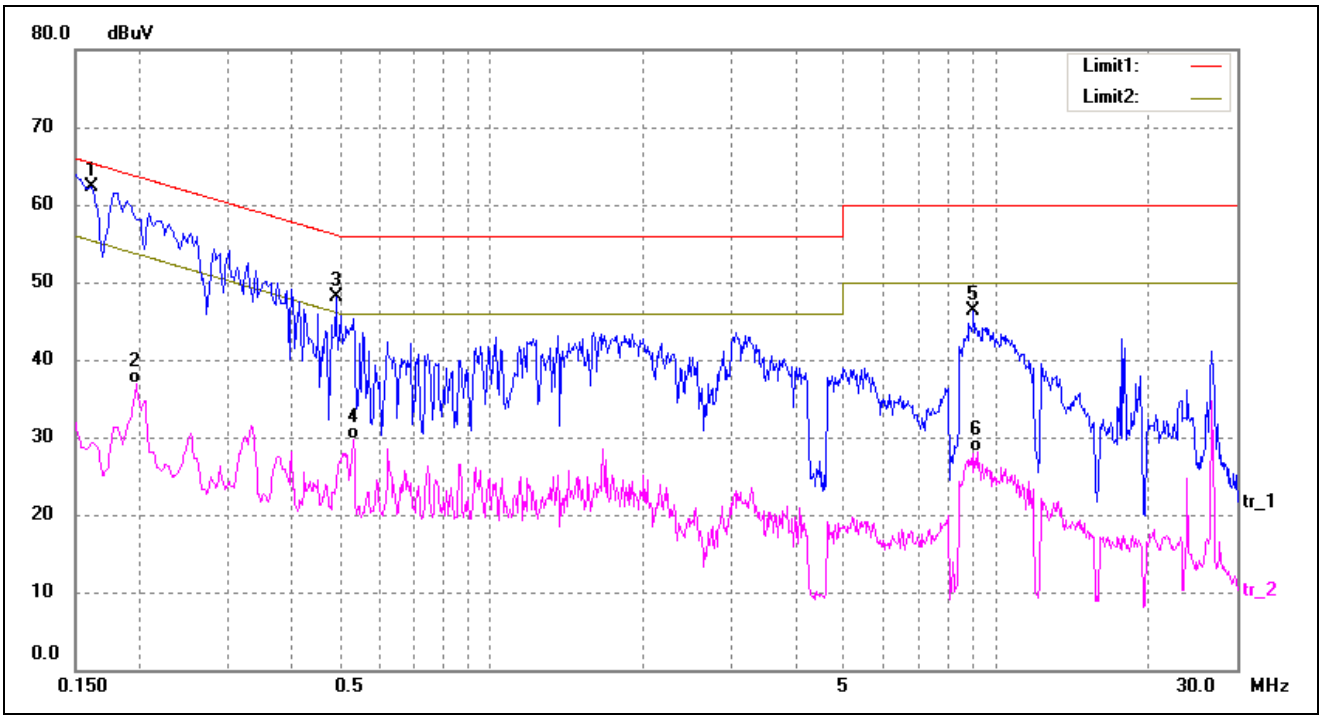
EUT: *Table PC*
Tested Model: *MS7016*
Operating Condition: *Charging& TF card play mode*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.2020	25.46	9.50	34.96	53.53	-18.57	AVG
2*	0.2100	50.51	9.50	60.01	63.21	-3.20	peak
3	0.4940	37.71	9.56	47.27	56.10	-8.83	peak
4	0.5100	17.38	9.56	26.94	46.00	-19.06	AVG
5	26.7900	30.74	10.56	41.30	60.00	-18.70	peak
6	26.7900	18.08	10.56	28.64	50.00	-21.36	AVG

Test Specification: *Line*

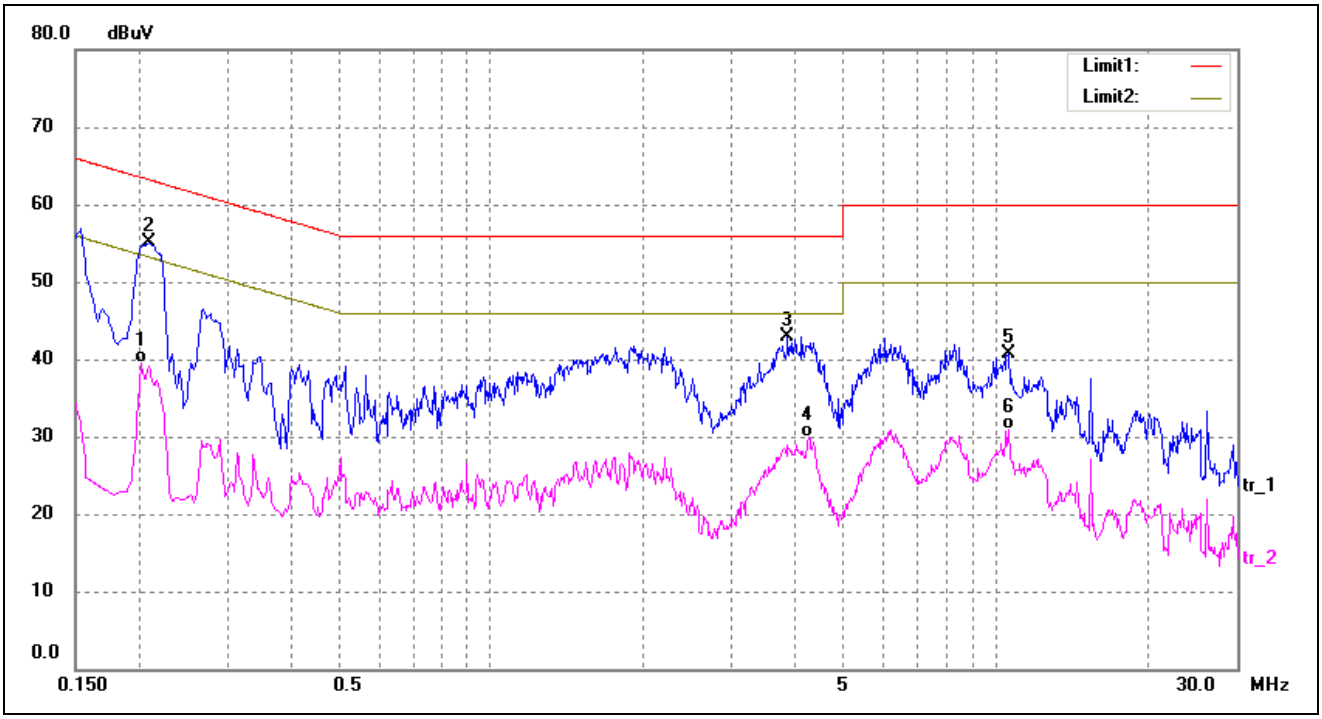


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1620	52.85	9.50	62.35	65.36	-3.01	peak
2	0.1980	27.35	9.50	36.85	53.69	-16.84	AVG
3	0.4940	38.45	9.56	48.01	56.10	-8.09	peak
4	0.5340	20.20	9.57	29.77	46.00	-16.23	AVG
5	9.0540	35.96	10.34	46.30	60.00	-13.70	peak
6	9.1780	17.69	10.34	28.03	50.00	-21.97	AVG

Plot of Conducted Emissions Test Data

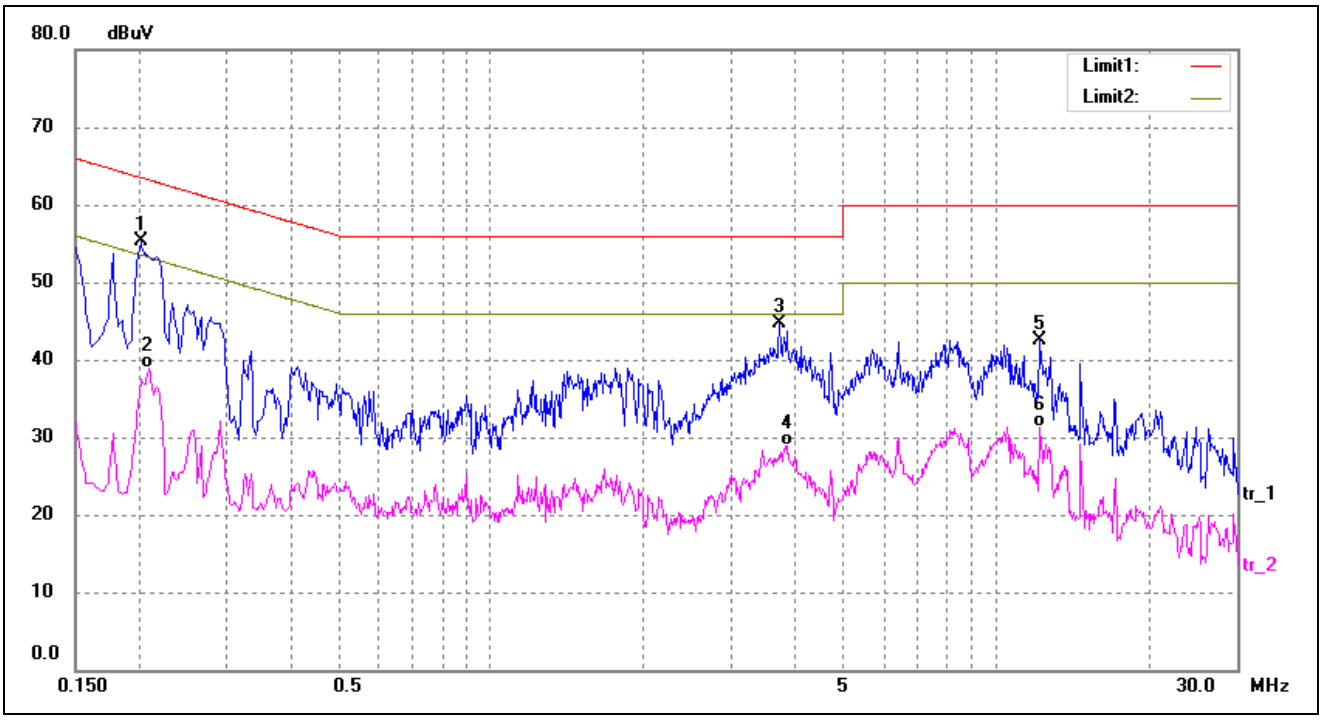
EUT: *Table PC*
Tested Model: *MS7016*
Operating Condition: *Download mode*
Comment: *AC 120V/60Hz; USB 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.2020	30.03	9.50	39.53	53.53	-14.00	AVG
2	0.2100	45.54	9.50	55.04	63.21	-8.17	peak
3	3.8740	32.81	10.08	42.89	56.00	-13.11	peak
4	4.2500	19.71	10.13	29.84	46.00	-16.16	AVG
5	10.5780	30.42	10.37	40.79	60.00	-19.21	peak
6	10.5780	20.55	10.37	30.92	50.00	-19.08	AVG

Test Specification: *Line*

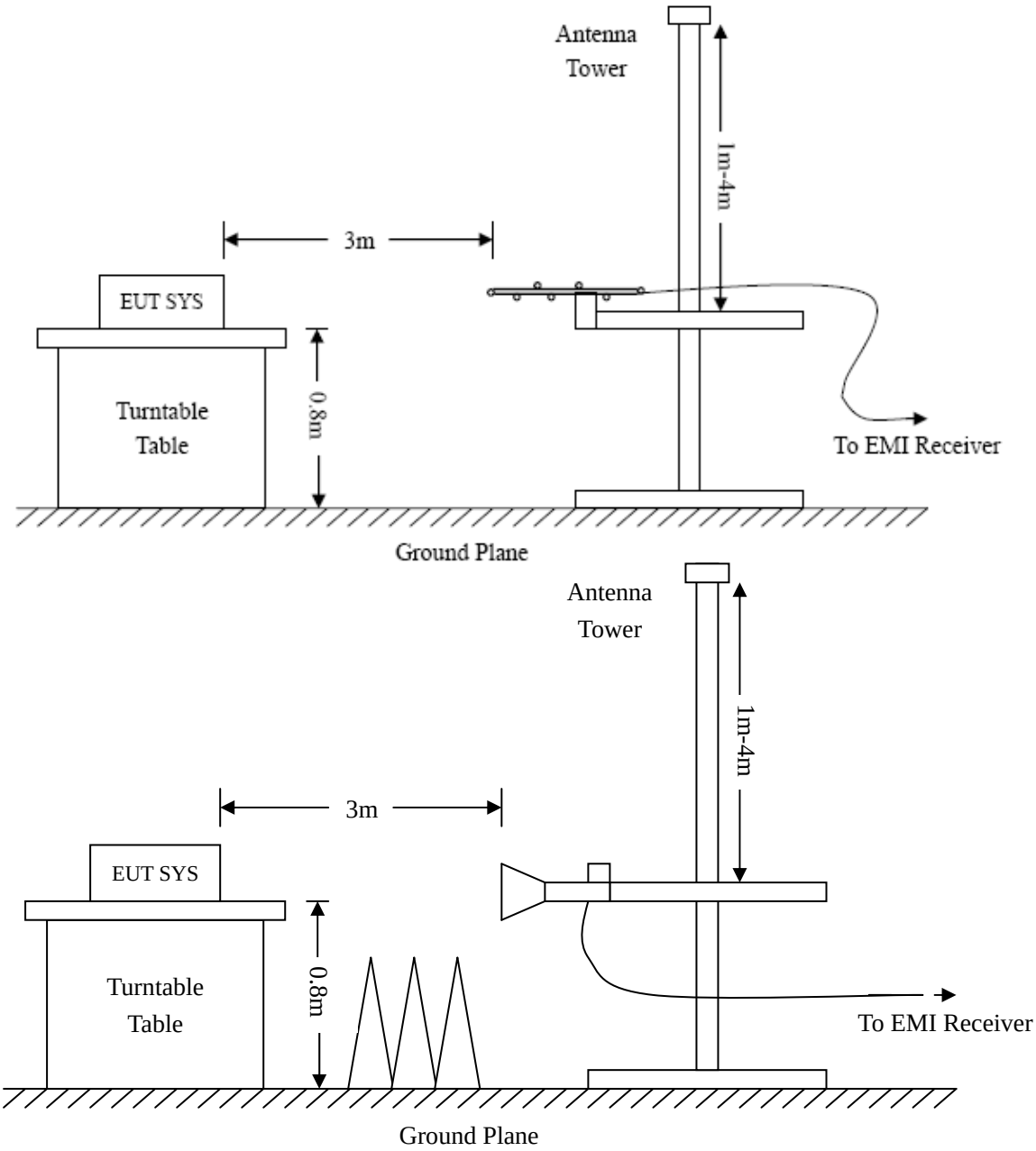


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.2020	45.72	9.50	55.22	63.53	-8.31	peak
2	0.2100	29.33	9.50	38.83	53.21	-14.38	AVG
3	3.7380	34.60	10.06	44.66	56.00	-11.34	AVG
4	3.8740	18.79	10.08	28.87	46.00	-17.13	peak
5	12.2220	32.04	10.39	42.43	60.00	-17.57	AVG
6	12.2220	20.99	10.39	31.38	50.00	-18.62	peak

4. Radiated Emissions

4.1 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 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.



4.2 Test Receiver Setup

Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

4.3 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:

Corr. Ampl. = Indicated Reading – Corr. Factor

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

Margin = Corr. Ampl. – FCC Part 15.109(a) Limit

4.4 Environmental Conditions

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

4.5 Summary of Test Results/Plots

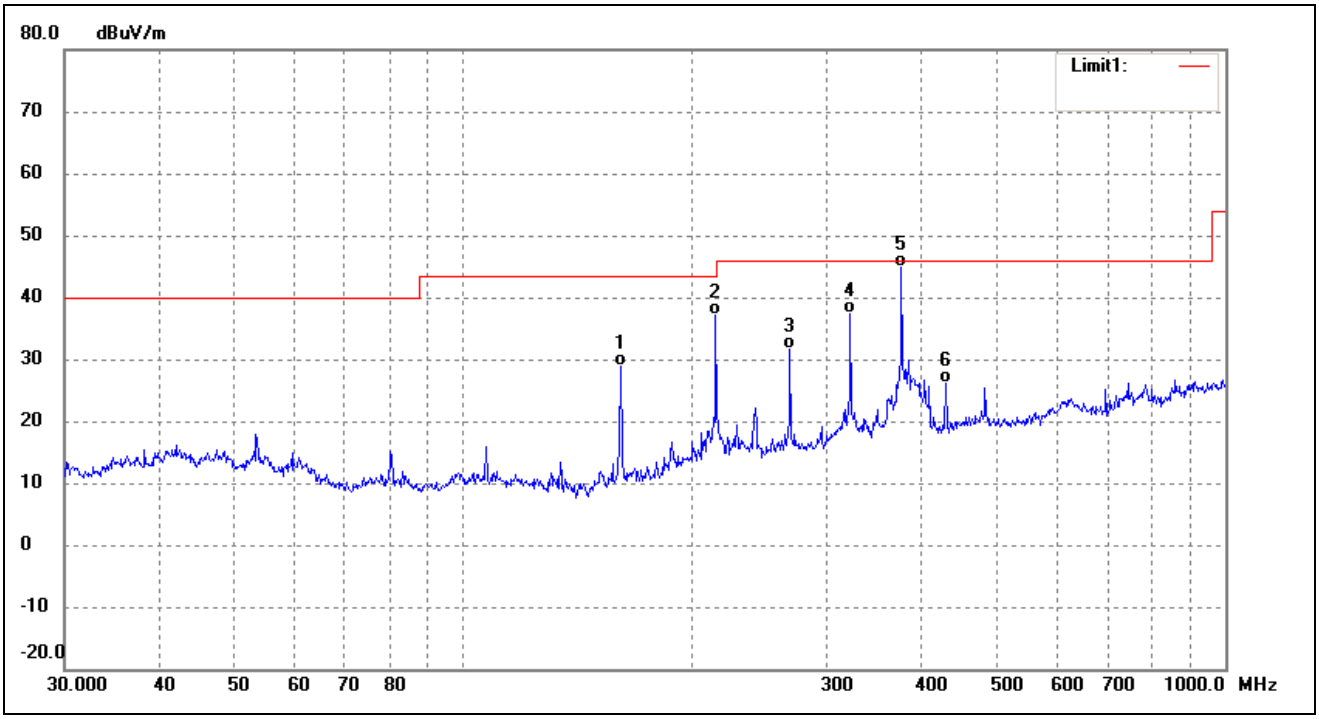
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-2.29 dB at **160.9088 MHz** in the **Vertical** polarization, **30MHz** to **7.5 GHz**, **3Meters, Download mode**

Plot of Radiated Emissions Test Data

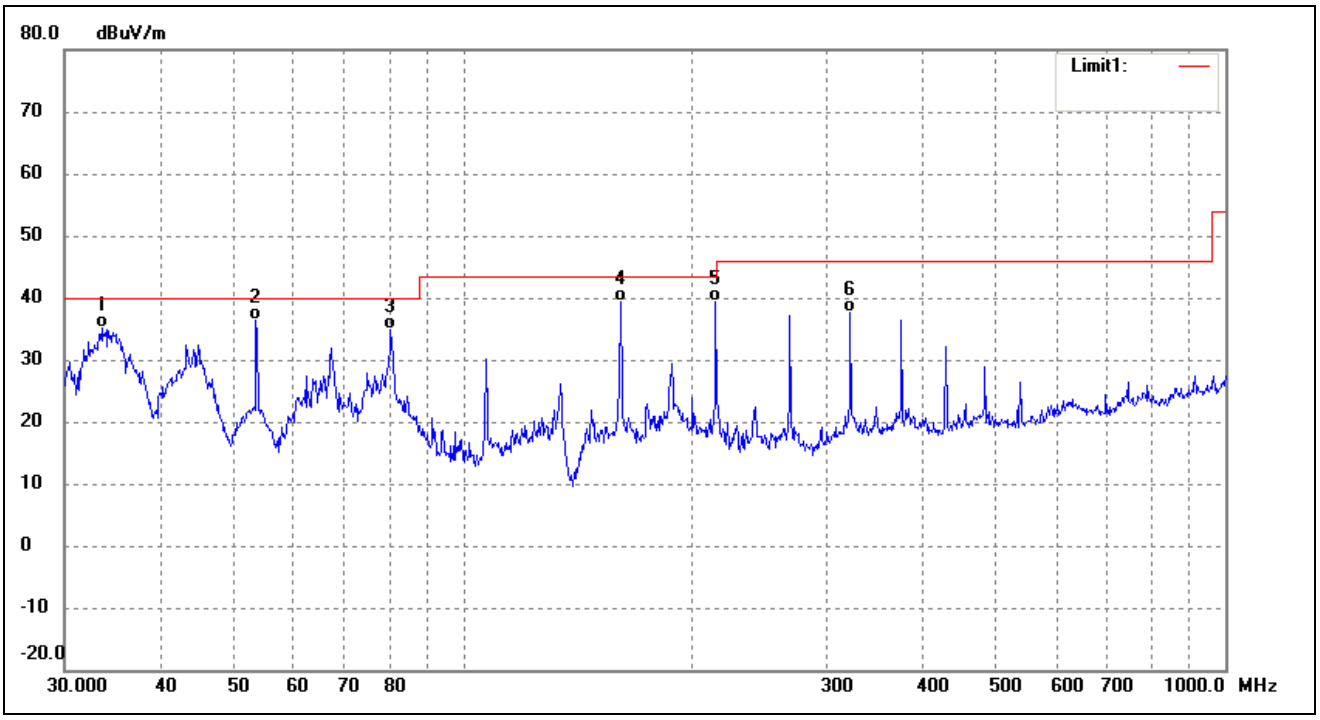
EUT: *Table PC*
Tested Model: *MS7016*
Operating Condition: *Charging& Camera mode*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	160.9089	41.15	-12.23	28.92	43.50	-14.58	360	100	QP
2	214.5143	46.04	-8.79	37.25	43.50	-6.25	360	100	QP
3	268.4853	38.15	-6.59	31.56	46.00	-14.44	360	100	QP
4	322.1886	42.13	-4.66	37.47	46.00	-8.53	360	100	QP
5	375.9385	47.30	-2.33	44.97	46.00	-1.03	360	100	QP
6	429.5228	29.26	-3.23	26.03	46.00	-19.97	360	100	QP

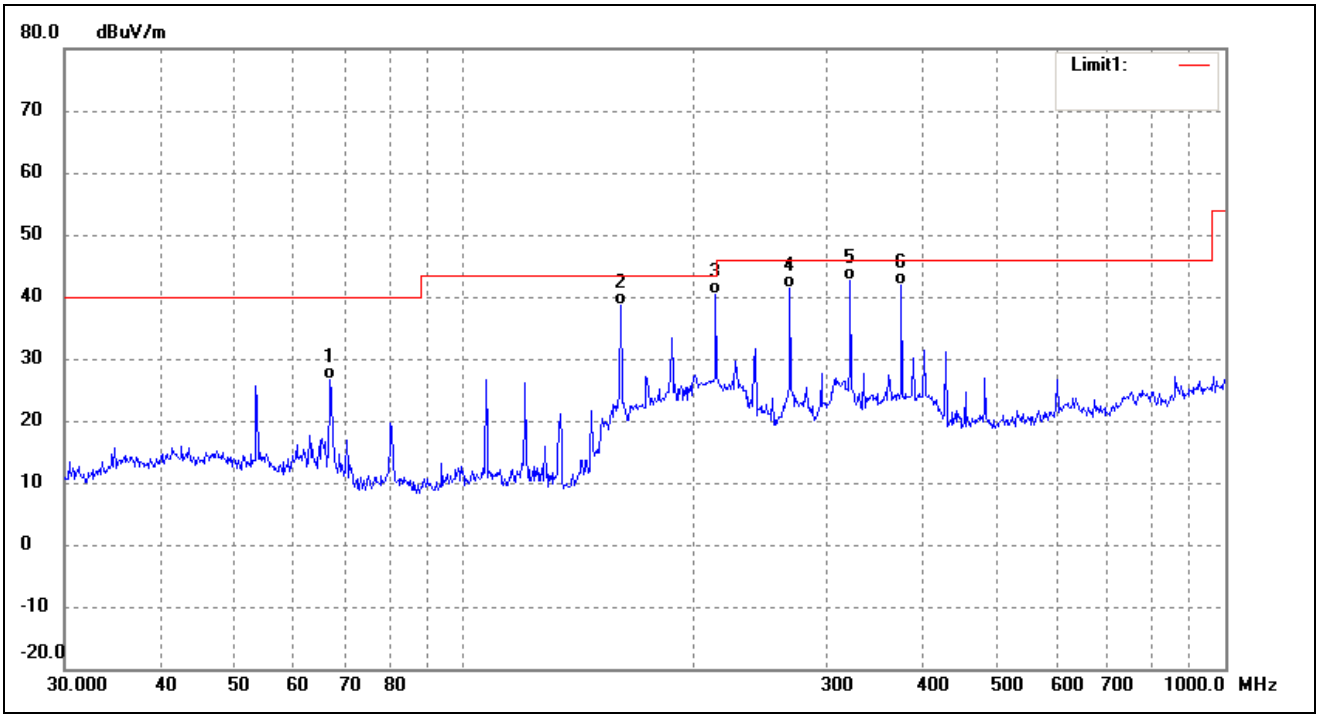
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	33.5624	44.53	-9.40	35.13	40.00	-4.87	360	100	QP
2	53.5052	45.20	-8.76	36.44	40.00	-3.56	360	100	QP
3	80.3619	46.89	-12.02	34.87	40.00	-5.13	360	100	QP
4	160.9089	51.71	-12.23	39.48	43.50	-4.02	360	100	QP
5	214.5143	48.21	-8.79	39.42	43.50	-4.08	360	100	QP
6	322.1886	42.24	-4.66	37.58	46.00	-8.42	360	100	QP

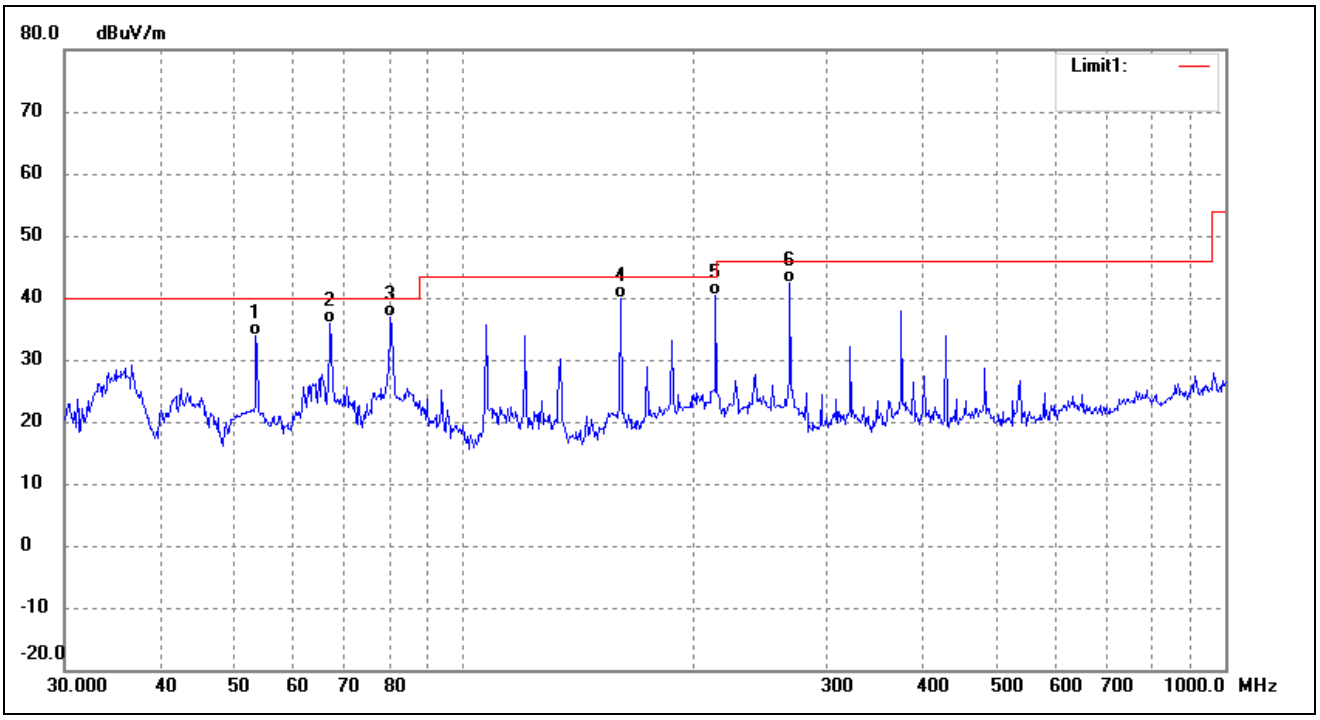
EUT: *Table PC*
Tested Model: *MS7016*
Operating Condition: *Charging& TF card play mode*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	66.9668	38.43	-11.85	26.58	40.00	-13.42	360	100	QP
2	160.9088	50.97	-12.23	38.74	43.50	-4.76	360	100	QP
3	214.5142	49.12	-8.79	40.33	43.50	-3.17	360	100	QP
4	268.4852	48.06	-6.59	41.47	46.00	-4.53	360	100	QP
5	322.1886	47.21	-4.66	42.55	46.00	-3.45	360	100	QP
6	375.9384	44.29	-2.33	41.96	46.00	-4.04	360	100	QP

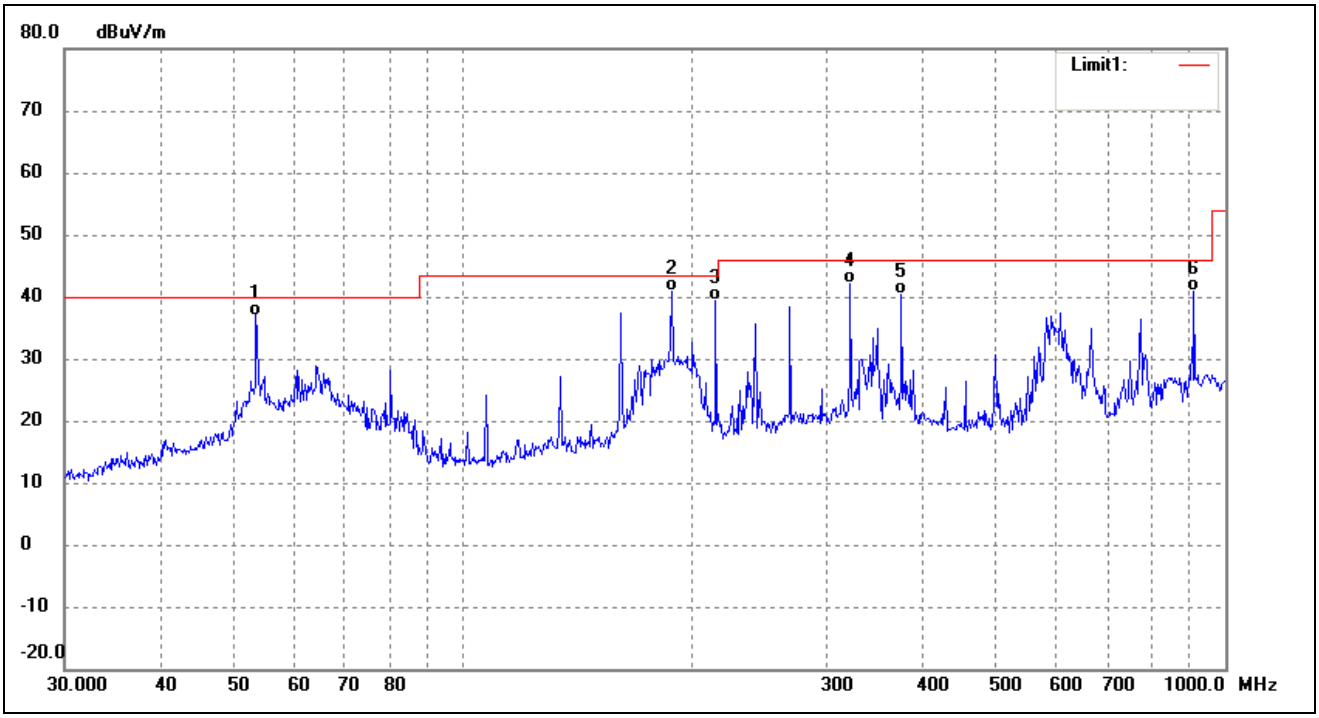
Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	53.5052	42.64	-8.76	33.88	40.00	-6.12	360	100	QP
2	66.9668	47.69	-11.85	35.84	40.00	-4.16	360	100	QP
3	80.3619	48.82	-12.02	36.80	40.00	-3.20	360	100	QP
4	160.9088	52.13	-12.23	39.90	43.50	-3.60	360	100	QP
5	214.5142	49.06	-8.79	40.27	43.50	-3.23	360	100	QP
6	268.4852	48.98	-6.59	42.39	46.00	-3.61	360	100	QP

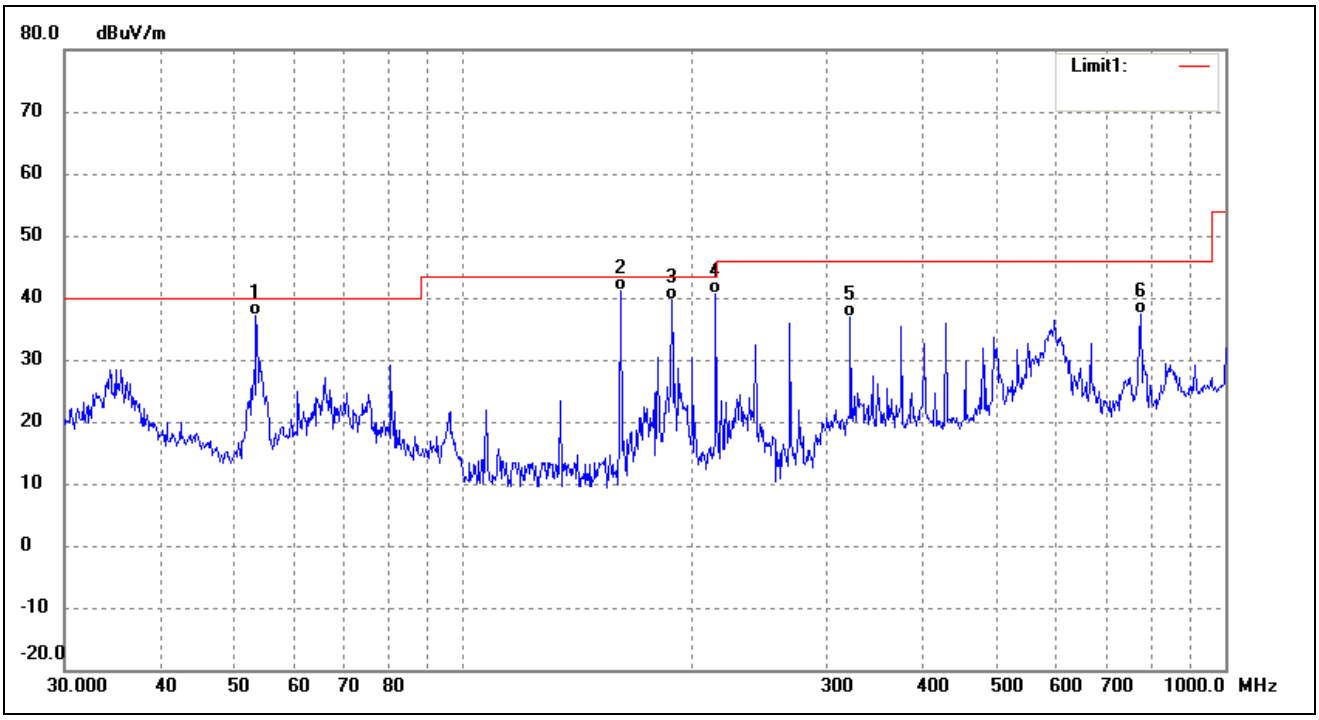
EUT: *Table PC*
Tested Model: *MS7016*
Operating Condition: *Download mode*
Comment: *AC 120V/60Hz; USB 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	53.5052	45.76	-8.76	37.00	40.00	-3.00	360	100	QP
2	187.7529	51.21	-10.31	40.90	43.50	-2.60	360	100	QP
3	214.5142	48.13	-8.79	39.34	43.50	-4.16	360	100	QP
4	322.1886	46.87	-4.66	42.21	46.00	-3.79	360	100	QP
5	375.9384	42.73	-2.33	40.40	46.00	-5.60	360	100	QP
6	909.6666	37.59	3.39	40.98	46.00	-5.02	360	100	QP

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	53.5052	45.80	-8.76	37.04	40.00	-2.96	360	100	QP
2	160.9088	53.44	-12.23	41.21	43.50	-2.29	360	100	QP
3	187.7529	49.82	-10.31	39.51	43.50	-3.99	360	100	QP
4	214.5142	49.36	-8.79	40.57	43.50	-2.93	360	100	QP
5	322.1886	41.57	-4.66	36.91	46.00	-9.09	360	100	QP
6	774.1584	34.82	2.58	37.40	46.00	-8.60	360	100	QP

Note: Testing is carried out with frequency rang 30MHz to the 7.5GHz, which above 1GHz is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.

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