MEASUREMENT REPORT
of
Portable Navigation Device
for
Class II permissive change

Applicant	**:**	ASUSTek Computer Inc.
EUT	**:**	Portable Navigation Device
Model No.	**:**	R300
FCC ID	**:**	MSQR300
Report No.	**:**	A5415070223

Tested by :

Training Research Co., Ltd.

TEL : 886-2-26935155 FAX : 886-2-26934440

No. 255, Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C.

CERTIFICATION

We here by verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made mainly in accordance with the procedures given in ANSI C63.4 (2003) as a reference. All test were conducted by ***Training Research Co., Ltd.***, 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is **in compliance with** the technical requirements set forth in the FCC Rules Part 15 Subpart C Section 15.239.

Applicant	**:**	ASUSTek Computer Inc.
Applicant address	**:**	4Fl., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan
Product Name	**:**	Portable Navigation Device
Model Name	**:**	R300
FCC ID	**:**	MSQR300
Report No.	**:**	A5415070223
Test Date	**:**	November 6, 2007

Prepared by: Jack Tsai *Jack Tsai* **Approved by:** Frank Tsai *Frank Tsai*

Conditions of issue :

(1) This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.

(2) This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.

(3) This test report, measurements made by TRC are traceable to the NIST only Conducted and Radiated Method.

NVLAP LAB CODE 200174-0

Tables of Contents

Ⅰ. GENERAL

1.1 Introduction

The following measurement report is submitted on behalf of applicant in support that the certification in accordance with Part 2 Subpart J and Part 15 Subpart A and C of the Commission's Rules and Regulations.

1.2 Description of EUT

FCC ID	**:**	MSQR300
Product Name	**:**	Portable Navigation Device
Model Name	**:**	R300
Frequency Range	**:**	88.1MHz to 107.9MHz
Support Channel	**:**	199 Channels
Channel Spacing	**:**	100 kHz
Modulation Skill	**:**	FM
Power Type	**:**	Car charger by vehicle battery I/P: 12 / 24 VAC O/P: 5VDC, 900mA 190cm length, non-shielded, without ferrite core

1.3 Test method

EUT connected to Vehicle Battery by Car charger:

1. The POWER jack (Mini USB) of EUT is connected with Vehicle Battery via a Car charger.

(1) The EUT could not use any audio device (ipod or MP3 player...etc), therefore test software provide by manufacture let EUT played the typical music file, and audio volume was adjusted to the worst case during the test.

(2) The tuning range has been manually verified and the device can work only within 88~108 MHz band.

(3) Using software provided by the applicant to linking EUT. The software is operated under the Windows to control the EUT in the unintentional and intentional test.

(4) Set different channel (88.1MHz/98.0MHz/107.9MHz) being tested and repeat the procedures above.

(a) Conducted and radiated for intentional test:

making EUT to the mode of continuous TX.

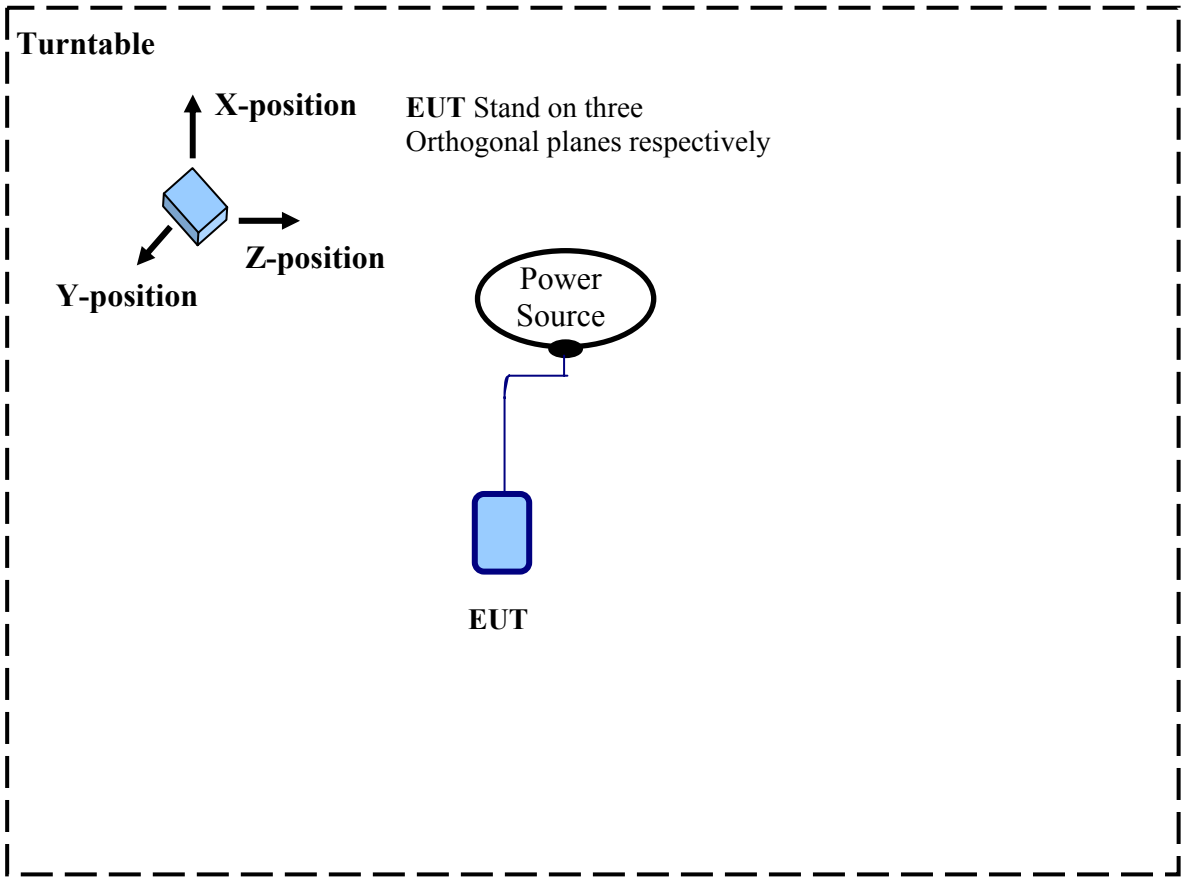
1.4 Description of Support Equipment

In order to construct the minimum testing, following equipment were used as the support units.

Mini SD card :		**Transcend**
Model No.	:	TS512MUSD-2
Serial No.	:	169856-2734
FCC ID	:	Doc Approved
BSMI	:	D33193
Power type	:	By EUT

1.5 Configuration of System Under Test

1.5.1 Conducted and Radiated of intentional



EUT:

Mini SD socket: *Mini SD Card

1.6 Test Procedure

All measurements contained in this report were performed mainly according to the techniques described in ANSI C63.4 (2003) and the pre-setup was written on 1.3 test method, the detail setup was written on each test item.

1.7 Location of the Test Site

The radiated emissions measurements required by the rules were performed on the **three-meter**, **Anechoic Chamber (FCC Registration Number: 93906)** maintained by *Training Research Co., Ltd.* 1F, No. 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. Complete description and measurement data have been placed on file with the commission. The conducted power line emissions tests and other test items were performed in a anechoic chamber also located at Training Research Co., Ltd.

No. 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. *Training Research Co., Ltd.* is listed by the FCC as a facility available to do measurement work for others on a contract basis.

1.8 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests were chosen as that which produced the highest emission levels. However, only those conditions, which the EUT was considered likely to encounter in normal use were investigated.

In test, they were set in high power and continuously transmitting mode that controlled by computer. The Lowest, Middle and Highest frequency of EUT were all tested. The setting up procedure is recorded on 1.3 test method.

II. Transmitter Duty Cycle Measurements

2.1 Test Condition & Setup

The duty cycle measurements were performed in a shielded enclosure. The EUT was placed on a wooded table which is 0.8 meters height and a bi-log periodic antenna was used distance about 3 meters for receiving. While testing EUT was set to transmit continuously. Various key configurations were also investigated to find the maximum duty cycle.

The resolution bandwidth and video bandwidth of the spectrum analyzer was all set to 1MHz to encompass all significant spectral components during the test. The analyzer operated in linear scale and zero span mode after tuning to the transmitter carrier frequency. The spectrum analyzer measured pules width. The pulse width was determined by the difference between the two half voltage points on a pulse.

The duty cycle was determined by the following equation:

$$\text{Duty Cycle (\%)} = \frac{\text{Total on interval in a complete pulse train}}{\text{Length of a complete pulse train}} \text{ X } 100\%$$

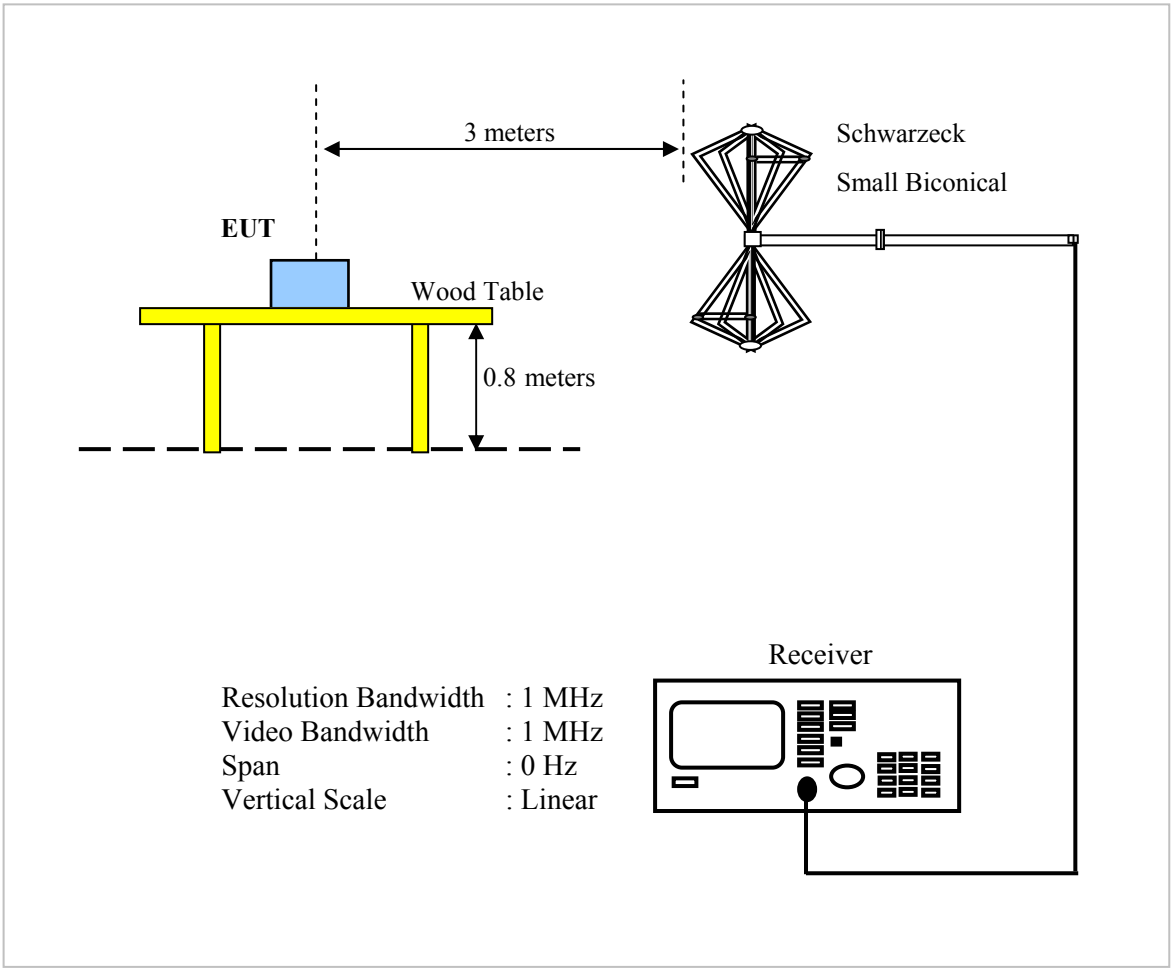
To calculate the actual field intensity, the duty cycle correction factor in decibel is needed for later use and be obtained from following conversion:

Duty Cycle Correction Factor (dB) = 20 X Log_{10} Duty Cycle

2.2 List of Test Instruments

				Calibration Date
Instrument Name	Model No.	Brand	Serial No.	Next time
EMI Receiver	8546A	H P	3520A00242	12/06/07
RF Filter Section	85460A	H P	3448A00217	12/06/07
Spectrum Analyzer	MS2665C	ANRITSU	6200175476	12/11/07
Spectrum Analyzer	8564E	HP	3720A00840	12/11/07
Microwave Preamplifier	84125C	HP	US36433002	11/18/07
Small Biconical Antenna	UBAA9114 & BBVU9135	SCHWARZECK	127	12/07/07

2.3 Test Instruments Configuration



2.4 Test Result

Following is the test result, which produce maximum duty cycle:

Duty Cycle (%) = 100%

Duty Cycle Correction Factor (dB) = 20 * Log (1) = 0

Maximum duty cycle according to FCC part 15.35(b): -20dB

A plot is attached on the following page.

III. Section 15.239(b): Field strength of fundamental frequency and Section 15.239 (C): Spurious Emissions (Radiated)

3.1 Test Condition & Setup

We'd performed the test by the *radiated emission* skill: The EUT was placed in an anechoic chamber, and set the EUT transmitting continuously and scanned at 3-meter distance to determine its emission characteristics. The physical arrangement of the EUT was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude, directivity, and frequency. The exact system configuration, which produced the highest emissions was noted so it could be reproduced later during the final tests. For the measurement above 1GHz, according to the guidance we'd set the spectrum analyzer's 6dB bandwidth RBW to 1MHz.

This was done to ensure that the final measurements would demonstrate the worst-case interference potential of the EUT.

Final radiation measurements were made on a three-meter, anechoic chamber. The EUT system was placed on a nonconductive turntable, which is 0.8 meters height, top surface 1.0 x 1.5 meter.

The spectrum was examined from 30 MHz to 1000 MHz using an Hewlett Packard 85460A EMI Receiver, SCHWARZECK whole range Small Biconical Antenna (Model No.: UBAA9114 & BBVU9135) is used to measure frequency from 30 MHz to 1GHz. The final test is used the HP 85460A spectrum and 8564E spectrum was examined from 1GHz to 25GHz using an Hewlett Packard Spectrum Analyzer, EMCO/HP Horn Antenna (Model 3115 / 84125-80008) for 1G - 25GHz.

At each frequency, the EUT was rotated 360 degrees, stand on three orthogonal planes respectively and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. There are two spectrum analyzers use on this testing, HP 85460A for frequency 30MHz to 1000MHz, and 8564E for frequency 1GHz to 25GHz. No post-detector video filters were used in the test. The spectrum analyzer's 6dB bandwidth was set to 120KHz (spectrum was examined from 30 MHz to 1000 MHz), the spectrum analyzer's 6 dB bandwidth was set to 1 MHz (spectrum was examined from 1GHz to 25GHz) and the analyzer was operated in the maximum hold mode. There is a test condition applies in this test item, the test procedure description as the following:

Three channels were tested, one in the lowest, one in the middle and the other in highest. The setting up procedure is recorded on <1.3>

With the transmitter operating from a AC source and using the internal of EUT, radiates spurious emissions falling within the restricted bands of 15.209 were measured at operating frequencies corresponding to upper, middle and bottom channels in the 2400 ~ 2483.5 MHz band.

The actual field intensity in decibels referenced to 1 microvolt per meter (dBμV/m) is determined by algebraically adding the measured reading in dBμV, the antenna factor (dB), and cable loss (dB) at the appropriate frequency. Since the EUT was set to transmit continuously, no *duty cycle* is present.

For frequency between 30MHz to 1000MHz

FIa (dBuV/m) = FIr (dBμV) + Correction Factors

FIa : Actual Field Intensity

FIr : Reading of the Field Intensity

Correction Factors = Antenna Factor + Cable Loss – Amplifier Gain

For frequency between 1GHz to 25GHz

FIa (dBμV/m) = FIr (dBμV) + Correction Factor

FIa : Actual Field Intensity

FIr : Reading of the Field Intensity

Correction Factors = Antenna Factor + Cable Loss – Amplifier Gain

3.2 List of Test Instruments

Calibration Date

Instrument Name	Model No.	Brand	Serial No.	Next time
EMI Receiver	8546A	HP	3520A00242	12/06/07
RF Filter Section	85460A	HP	3448A00217	12/06/07
Small Biconical Antenna	UBAA9114 & BBVU9135	SCHWARZECK	127	12/17/07
Pre-amplifier	PA1F	TRC	1FAC	04/10/08
Auto Switch Box (>30MHz)	ASB-01	TRC	9904-01	04/10/08
Coaxial Cable (Double shielded, 15 meter)	A30A30-0058-50FS-15M	JYEBAO	SMA-01	04/10/08
Coaxial Cable (1.1 meter)	A30A30-0058-50FS-1M	JYEBAO	SMA-02	04/10/08
Spectrum Analyzer	8564E	HP	3720A00840	12/11/07
Microwave Preamplifier	84125C	HP	US36433002	11/07/08
Horn Antenna	3115	EMCO	9104-3668	02/05/08
Standard Guide Horn Antenna	84125-80008	HP	18-26.5GHz	12/12/07
Standard Guide Horn Antenna	84125-80001	HP	26.5-40GHz	12/12/07
Horn Antenna	1196E (3115)	HP (EMCO)	9704-5178	02/12/08
Pre-amplifier	PA2F	TRC	2F1GZ	04/10/08
Coaxial Cable (3 miter)	A30A30-0058-50FS T118	JYEBAO	MSA-05	04/10/08
Coaxial Cable (1 meter)	A30A30-0058-50FS T118	JYEBAO	MSA-04	04/10/08

3.3 Test Result

The highest peak values of radiated emissions form the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Testing room : Temperature : 25 °C Humidity : 73% RH

Test mode: 88.1MHz for 30MHz to 2GHz [Horizontal] - Y

Radiated Emission				CF	Peak Value	Duty Cycle	True Value	FCC Class B	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Angle	(dB)	(dBμV/m)	(dB)	(dBμV/m)	Limit (Avg.) (dBμV/m)	Margin (dB)
193.69	33.88	1.00	113	-3.58	30.30	---	30.30	43.50	-13.20
318.57	41.80	1.00	97	-2.67	39.13	---	39.13	46.00	-6.87
334.34	45.78	1.00	337	-2.47	43.31	---	43.31	46.00	-2.69
361.01	44.01	1.00	217	-2.01	42.00	---	42.00	46.00	-4.00
399.81	36.12	1.00	0	-1.08	35.04	---	35.04	46.00	-10.96
1233.33	31.89	1.00	152	1.00	32.89	0.00	32.89	53.96	-21.07
1497.50	33.14	1.00	200	0.01	33.15	0.00	33.15	53.96	-20.81
1762.50	34.37	1.00	249	0.90	35.27	0.00	35.27	53.96	-18.69

Test mode: 88.1MHz for 30MHz to 2GHz [Vertical] - Z

Radiated Emission				CF	Peak Value	Duty Cycle	True Value	FCC Class B	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Angle	(dB)	(dBμV/m)	(dB)	(dBμV/m)	Limit (Avg.) (dBμV/m)	Margin (dB)
157.31	28.25	1.00	261	-4.14	24.11	---	24.11	43.50	-19.39
265.23	33.72	1.00	281	-3.90	29.82	---	29.82	46.00	-16.18
305.24	32.80	1.00	225	-2.83	29.97	---	29.97	46.00	-16.03
331.91	39.95	1.00	0	-2.50	37.45	---	37.45	46.00	-8.55
339.19	38.05	1.00	304	-2.41	35.64	---	35.64	46.00	-10.36
1233.33	31.06	1.00	255	1.00	32.06	0.00	32.06	53.96	-21.90
1497.50	34.36	1.00	171	0.01	34.37	0.00	34.37	53.96	-19.59
1762.50	33.50	1.00	56	0.90	34.40	0.00	34.40	53.96	-19.56

Test mode: 98.0MHz for 30MHz to 2GHz [Horizontal] - Z

Radiated Emission				CF	Peak Value	Duty Cycle	True Value	FCC Class B	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Angle	(dB)	(dBμV/m)	(dB)	(dBμV/m)	Limit (Avg.) (dBμV/m)	Margin (dB)
158.52	39.30	1.00	122	-4.10	35.20	---	35.20	43.50	-8.30
318.57	44.11	1.00	26	-2.67	41.44	---	41.44	46.00	-4.56
331.91	44.49	1.00	17	-2.50	41.99	---	41.99	46.00	-4.01
353.74	44.55	1.00	126	-2.18	42.37	---	42.37	46.00	-3.63
367.07	42.98	1.00	96	-1.86	41.12	---	41.12	46.00	-4.88
1274.17	31.65	1.00	265	0.90	32.55	0.00	32.55	53.96	-21.41
1568.33	33.22	1.00	63	0.22	33.44	0.00	33.44	53.96	-20.52
1862.50	32.63	1.00	248	2.50	35.13	0.00	35.13	53.96	-18.83

Test mode: 98.0MHz for 30MHz to 2GHz [Vertical] - Z

Radiated Emission				CF	Peak Value	Duty Cycle	True Value	FCC Class B	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Angle	(dB)	(dBμV/m)	(dB)	(dBμV/m)	Limit (Avg.) (dBμV/m)	Margin (dB)
145.19	32.78	1.00	175	-3.94	28.84	---	28.84	43.50	-14.66
158.52	34.98	1.00	44	-4.10	30.88	---	30.88	43.50	-12.62
198.54	36.64	1.00	13	-3.36	33.28	---	33.28	43.50	-10.22
259.16	31.78	1.00	108	-3.82	27.96	---	27.96	46.00	-18.04
339.19	40.66	1.00	178	-2.41	38.25	---	38.25	46.00	-7.75
1274.17	31.71	1.00	239	0.90	32.61	---	32.61	53.96	-21.35
1568.33	33.35	1.00	62	0.22	33.57	---	33.57	53.96	-20.39
1862.50	32.77	1.00	269	2.50	35.27	---	35.27	53.96	-18.69

Test mode: 107.9MHz for 30MHz to 2GHz [Horizontal] - Z

Radiated Emission				CF	Peak Value	Duty Cycle	True Value	FCC Class B	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Angle	(dB)	(dBμV/m)	(dB)	(dBμV/m)	Limit (Avg.) (dBμV/m)	Margin (dB)
135.49	38.60	1.00	118	-3.26	35.34	---	35.34	43.50	-8.16
319.79	38.82	1.00	347	-2.65	36.17	---	36.17	46.00	-9.83
331.91	45.49	1.00	72	-2.50	42.99	---	42.99	46.00	-3.01
361.01	44.52	1.00	82	-2.01	42.51	---	42.51	46.00	-3.49
379.20	38.92	1.00	190	-1.58	37.34	---	37.34	46.00	-8.66
1079.17	31.32	1.00	180	0.93	32.25	---	32.25	53.96	-21.71
1510.42	33.13	1.00	257	0.03	33.16	---	33.16	53.96	-20.80
1834.58	32.73	1.00	176	2.05	34.78	---	34.78	53.96	-19.18

Test mode: 107.9MHz for 30MHz to 2GHz [Vertical] - Z

Radiated Emission				CF	Peak Value	Duty Cycle	True Value	FCC Class B	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Angle	(dB)	(dBμV/m)	(dB)	(dBμV/m)	Limit (Avg.) (dBμV/m)	Margin (dB)
139.12	29.24	1.00	263	-3.42	25.82	---	25.82	43.50	-17.68
192.47	32.37	1.00	73	-3.63	28.74	---	28.74	43.50	-14.76
331.91	39.69	1.00	27	-2.50	37.19	---	37.19	46.00	-8.81
340.40	40.36	1.00	67	-2.39	37.97	---	37.97	46.00	-8.03
399.81	31.83	1.00	0	-1.08	30.75	---	30.75	46.00	-15.25
1079.17	31.26	1.00	156	0.93	32.19	---	32.19	53.96	-21.77
1510.42	33.64	1.00	248	0.03	33.67	---	33.67	53.96	-20.29
1834.58	33.16	1.00	179	2.05	35.21	---	35.21	53.96	-18.75

Note:

1. Margin = Amplitude – limit, *if margin is minus means under limit.*
2. Correction factor = Antenna factor + (Cable Loss – Amplitude gain)
3. Peak Value = Reading Amplitude + Correction Factors
4. True Value = Peak Value + Duty Cycle