World Standardization Certification &Testing CO.,LTD
World Standardization Safety and EMC Testing Centre

FCC ID
TEST REPORT

for

TRAILER MONITORING SYSTEM

Trade Mark: N/A

Model: TRMS-RFS-FS006

Test Report Number:WSCT10040109E

Issued Date:April 30, 2010

Issued for

Kenwo Industries Limited

Unit 1-2, 7/F, Block A, Hi-Tech Ind Ctr 5 Park Tin Par Street Tsuen Wan,Hong Kong

Issued by:

WORLD STANDARDIZATION CERTIFICATION & TESTING CO., LTD.

1-2/F, DACHONG SCIENCE & TECHNOLOGY BUILDING NO.28 OF TONGGU ROAD, NANSHAN DISTRICT, SHENZHEN. PRC

TEL: +86-755-26996192

FAX: +86-755-26996253

Revision History of report

Rev.	Issue No.	Revisions	Effect Page	Revised By
00	WSCT10040109E	Initial Issue	ALL	Kallen Wang

TABLE OF CONTENTS

1 TEST RESULT CERTIFICATION

Product:	TRAILER MONITORING SYSTEM
Model:	TRMS-RFS-FS006
Trade Mark:	N/A
Applicant:	Kenwo Industries Limited Unit 1-2, 7/F, Block A, Hi-Tech Ind Ctr 5 Park Tin Par Street Tsuen Wan, Hong Kong
Factory	Kenwo Manufacturing Factory Linwu Industrial Area, Junzibu, Guanlan, Baoan, Shenzhen, China
Tested Date:	April 18~ April 20,2010
Test Voltage:	DC 3.6V

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC PART 15C	No non-compliance noted
ANSI C63.4: 2003	No non-compliance noted

Note: 1. The test result judgment is decided by the limit of measurement standard
2. The information of measurement uncertainty is available upon the customer's request.

Deviation from Applicable Standard
None

The above equipment has been tested by World Standardization Certification & Testing Co., Ltd and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By: ***Davis Zhou*** ***Date:*** ***2010-04-30***

(Davis Zhou)

Check By: ***Date:*** ***2010-04-30***

(Kelly Wu)

Approved By: ***Date:*** ***2010-04-30***

(Kallen Wang)

2 TEST RESULT SUMMARY

Test Item	Test Result
Conduct Emission	N/A
Radiation Emission	Pass
Bandwidth Test	Pass
Dwell time Test	Pass

Note: 1. The test result judgment is decided by the limit of test standard

2. The information of measurement uncertainty is available upon the customer's request.

3. N/A means to no applicable.

3 EUT DESCRIPTION

Product	TRAILER MONITORING SYSTEM
Brand Name	N/A
Model	TRMS-RFS-FS006
Applicant	Kenwo Industries Limited
EUT Type	☐Engineering Sample. ☐ Product Sample, ☒ Prototype Sample.
Serial Number	N/A
Antenna Type	Integral antenna
EUT Power Rating	DC 3.6V
Temperature Range(Operating)	15-35℃
Operating Frequency	315MHz
Number of Channels	1
Channel Separation	N/A
Modulation type	ASK
Transmitter time	The single activation time is 200ms,it will cease transmittion after activation.

N/A mean to no applicable

I/O PORT

I/O PORT TYPES	Q'TY	TESTED WITH
N/A		

Models difference

N/A

4 TEST METHODOLOGY

4.1 DECISION OF FINAL TEST MODE

The EUT was tested together with the below additional components, and configuration, which produced the worst emission levels, was selected and recorded in this report.

The measurement was performed at 3 axis for lie orientation, side orientation and stand orientation. The stand orientation is the worst mode, so only the worst mode test data was reported.

the following test mode was recorder in this report.

Test Item	Test mode
Conduct Emission	N/A
Radiation Emission	Continously TX mode
Bandwidth Test	Normal operation
Dwell time Test	Normal operation

4.2 EUT SYSTEM OPERATION

1. Set up EUT with the relative support equipments.
2. Make sure the EUT worked normally during the test.

5 SETUP OF EQUIPMENT UNDER TEST

5.1 DESCRIPTION OF SUPPORT UNITS

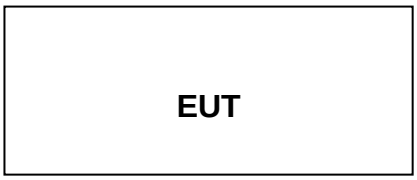
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1.	N/A						

Note:

1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5.2 CONFIGURATION OF SYSTEM UNDER TEST



(EUT:TRAILER MONITORING SYSTEM)

6 FACILITIES AND ACCREDITATIONS

6.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

1-2/F, DaChong Science&Technology Building, No.28 of Tonggu Road,Nanshan District, ShenZhen.PRC

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 15. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	**FCC (The certificate registration number is 276008)**
	TIMCO (The certificate registration number is Q2001)
Japan	**VCCI (The certificate registration number is C-2912, R-2662)**
Canada	**INDUSTRY CANADA (The certificated registration number is 46405-7700)**
Germany	**TUV (The certificate registration number is UA50138086-0001,UA50138086-0002)**
	EMCC (The certificated registration number is 080380)
China	**CNAS (The certificated registration number is L3732)**

Copies of granted accreditation certificates are available for downloading from our web site, http://www.wsct.org.cn

6.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency		Uncertainty
Conducted emissions	450kHz~30MHz		+/- 3.59dB
Radiated emissions	Horizontal	30MHz ~ 200MHz	+/- 4.77dB
		200MHz ~1000MHz	+/- 4.93dB
	Vertical	30MHz ~ 200MHz	+/- 5.04dB
		200MHz ~1000MHz	+/- 4.93dB

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

7 CONDUCTED EMISSION MEASUREMENT

7.1 LIMITS

FREQUENCY (MHz)	LIMIT(dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:
(1) The lower limit shall apply at the transition frequencies.
(2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
(3) All emanations from EUT or system, shall not exceed the level of field strengths specified above.

7.2 TEST INSTRUMENTS

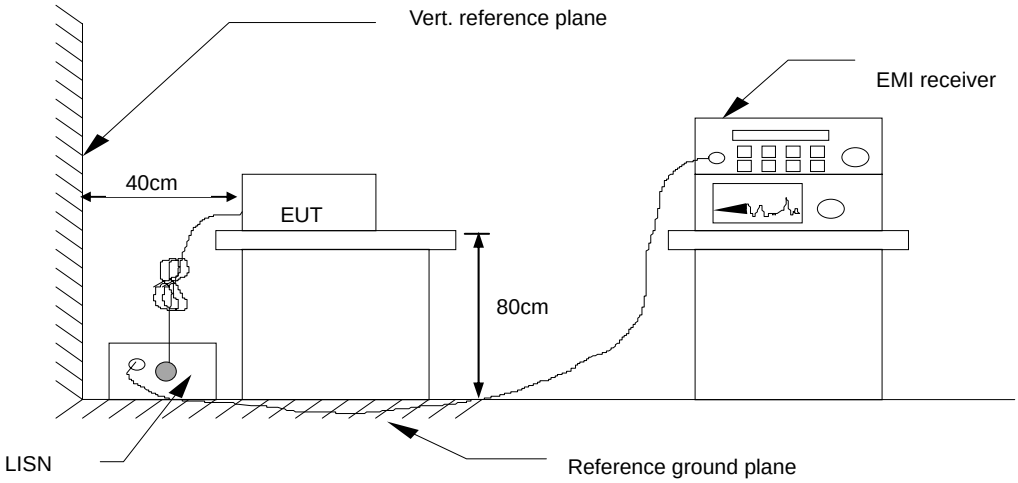
Conducted Emission Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCI	100005	06/24/2010
LISN	AFJ	LS16	16010222119	09/29/2010
LISN(EUT)	Mestec	AN3016	04/10040	09/28/2010

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).
2. N.C.R = No Calibration Request.

7.3 TEST PROCEDURES

The EUT was put on a wooden table which was 0.8metre high above the ground and connected to the AC mains through a Artificial Mains Network (A.M.N). The mains lead in excess of 1 m separating the EUT from the AMN was folded back and forth parallel to the lead so as to form a bundle with a length of 0.3m to 0.4m. The EUT was kept 0.4m from any other earthed conducting surface. Both sides of AC line were checked to find out the maximum conducted emission levels according to the test procedure during conducted emission test.
The bandwidth of the test receiver (ESCI) was set at 9KHz.
The frequency range from 150 KHz to 30 MHz was investigated.
The test data of the worst-case condition(s) was recorded.

7.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.5. TEST RESULTS

No applicable. Due to this prodcut is supplied power by battery.

8 RADIATED EMISSION MEASUREMENT

8.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FCC Part 15 C (Section:15.205; Section:15.209; Section:15.231(e)
According to 15.231 the field strength of emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Fundamental Frequency(MHz)	Field Strength of Fundamental		Field Strength of Spurious	
	uV/meter	dBuV/meter	uV/meter	dBuV/meter
40.66 - 40.70	1000	60	100	50
70 -130	500	53.98	50	43.98
130 - 174	500 to1500**	53.98 to 63.52	50 to150**	43.98 to 53.52
174 - 260	1500	63.52	150	53.52
260 - 470	1500 to 5000**	63.52 to 73.98	150 to 500**	53.52 to 63.98
Above 470	5000	73.98	500	63.98

Note: (1) Where F is the frequency in MHz,the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174MHz,uV/m at 3 meters = 22.72727(F) –2454.545; for the band 260-470MHz,uV/m at 3 meters = 16.6667(F) –2833.3333.The maximum permitted unwanted emission level is 20dB below the maximum permitted fundamental level.

(2) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges. Emissions radiated outside of the specified bands,shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength uV/meter	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

As shown in 15.35(b), for frequencies above 1000MHz,the field strength limits are based on average detector, however,the peak field strength of any emission shall not exceed the maximum permitted average limits,specified above by more than 20dB under any condition fo modulation.

8.2 TEST INSTRUMENTS

Radiated Emission Test Site 966				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100005	06/24/2010
Spectrum Analyser	ROHDE&SCHWARZ	FSU	100114	04/14/2011
Preamplifier	H.P.	HP8447E	2945A02715	06/24/2010
Bilog Antenna	SUNOL Sciences	JB3	A021907	06/24/2010
Preamplifier	Compliance Direction	PAM0118	1360976	06/15/2010
Horn Antenna	Compliance Engineer	CE18000	001	06/10/2010
Cable	TIME MICROWAVE	LMR-400	N-TYPE04	06/09/2010
System-Controller	CCS	N/A	N/A	N.C.R
Turn Table	CCS	N/A	N/A	N.C.R
Antenna Tower	CCS	N/A	N/A	N.C.R

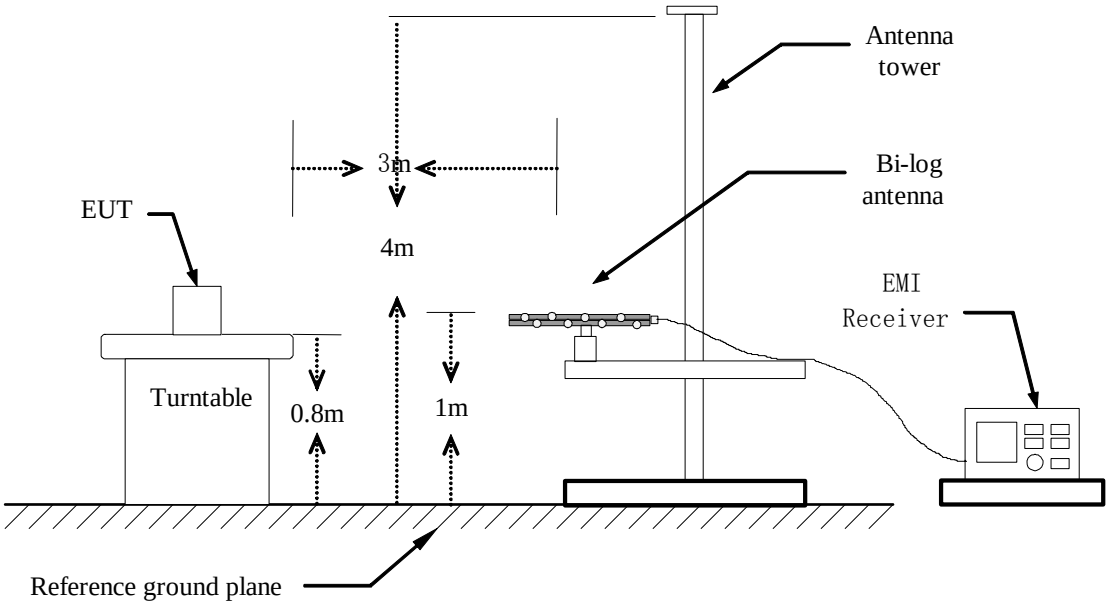
NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to International system of unit (SI).
2. N.C.R = No Calibration Request.

8.3 TEST PROCEDURES

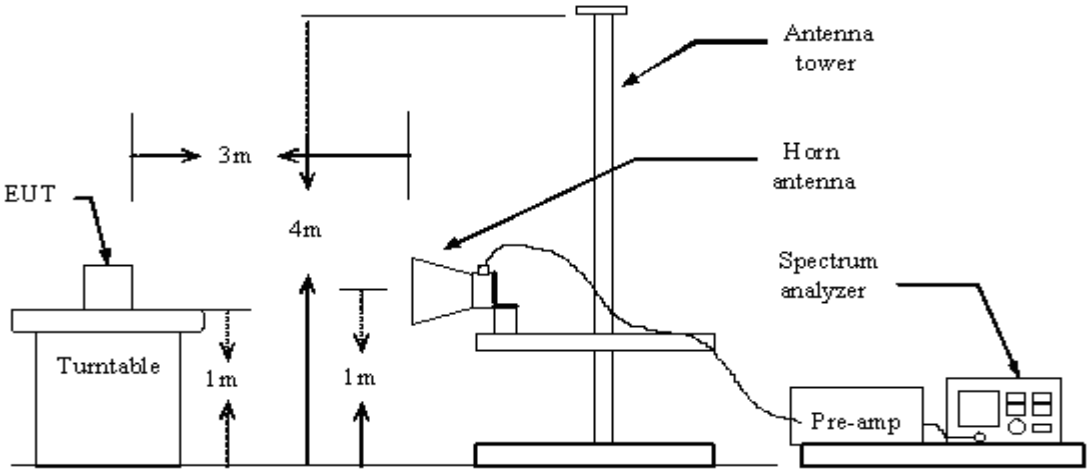
The EUT was placed on a turn table which was 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower.At the frequency of 30 MHz～1000MHz ,the measuring antenna moved up and down to find out the maximum emission level. It moved from 1 to 4 m for horizontal and vertical polarizations. The broadband antenna was used as a receiving antenna. At the frequency of 1 GHz -5GHz ,the measuring antenna stands 1 m for horizontal and vertical polarizations. The horn antenna was used as a receiving antenna.
The bandwidth setting on the test receiver was 120 KHz(30 MHz～1000MHz).
The bandwidth setting on the test receiver was 1MHz(1 GHz～5GHz).
The test data of the worst-case condition(s) was recorded.

8.4TEST SETUP

Below 1G



Abover 1GHz



8.5TEST RESULTS

Model No.	TRMS-RFS-FS006	**Test Mode**	Continously TX mode
Environmental Conditions	25°C, 55% RH	**Test Result**	Pass

Frequency (MHz)	Ant. Pol.	Corr.Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin	Note	Result
315.00	H	-2.74	71.24	87.66	-15.54	Peak	**Pass**
315.00	H	-2.74	66. 87	67.66	-14.31	AV	**Pass**
630.00	H	1.25	30.76	67.66	-36.9	Peak	**Pass**
630.00	H	1.25	––	47.66	––	AV	**Pass**
945.68	H	5.58	36.91	67.66	-30.75	Peak	**Pass**
945.68	H	5.58	––	47.66	––	AV	**Pass**
30.00	H	1.47	26.41	40.00	-13.59	QP	**Pass**
1235.00	H	26.30	53.50	74.00	-20.5	Peak	**Pass**
1235.00	H	26.30	--	54.00	--	AV	**Pass**
315.00	V	-1.81	63.71	87.66	-56.33	Peak	**Pass**
315.00	V	--	--	67.66	--	AV	**Pass**
945.00	V	5.58	35.47	67.66	-41.71	Peak	**Pass**
945.00	V	--	--	47.66	--	AV	**Pass**
30.0000	V	1.47	25.63	40.00	-16.03	QP	**Pass**
658.56	V	2.68	28.21	46.00	-20.22	QP	**Pass**
1200.00	V	26.50	52.14	74.00	-15.12	Peak	**Pass**
1200.00	V	26.50	--	54.00	-3.93	AV	**Pass**
1754.00	V	27.22	50.17	74.00	-18.83	Peak	**Pass**
1754.00	V	27.22	--	54.00	-7.53	AV	**Pass**
2330.00	V	27.98	52.76	74.00	-17.24	Peak	**Pass**
2330.00	V	27.98	--	54.00	-5.94	AV	**Pass**

Note: 1. Level = Antenna Factor + Cable Loss + Meter Reading-Preamp factor
2. Corr.Factor= Antenna Factor + Cable Loss -Preamp factor
3. AV level =PK level-|20logdutycycle|
4. 20logdutycycle=20log(69*0.64ms+14*1.16ms)/100ms=-4.37
5. -- means to the measure is no necessary,due to the PK value comply with AV limits.

9 20dB OCCUPIED BANDWIDTH MEASUEMENT

9.1 LIMITS OF BAND

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for device operating above 70MHz and below 900MHz.

9.2 TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100005	06/24/2010
Pre Amplifier	H.P.	HP8447E	2945A02715	06/24/2010
Bilog Antenna	SUNOL Sciences	JB3	A021907	06/24/2010

9.3 TEST PROCEDURE

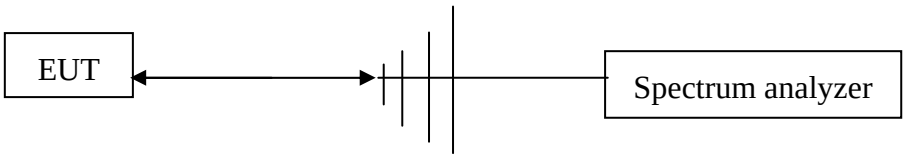
The EUT was placed on a turn table was 0.8meter above ground.

The signal was coupled to the specturm analyzer through an antenna.

Set SPA RBW:10KHz,VBW:30KHz sweep time :auto

Set SPA trace max hold,then view.

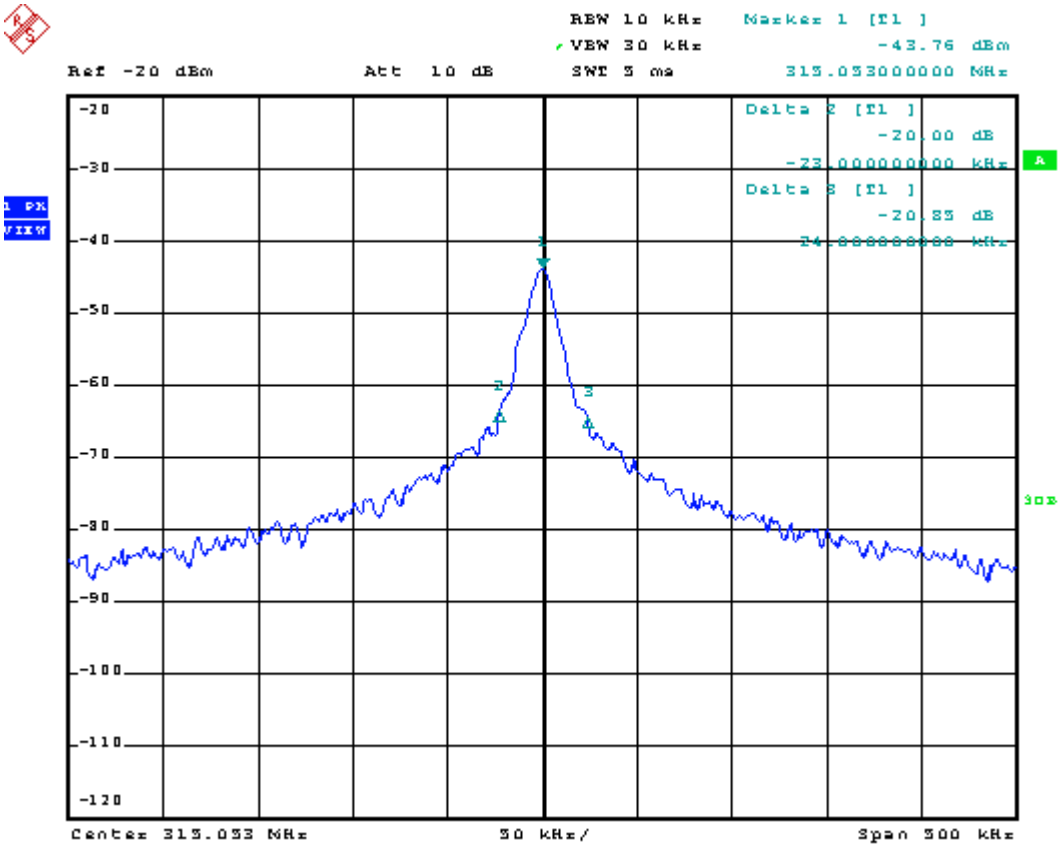
9.4 TEST SETUP



9.5 TEST RESULT

Frequency (MHz)	20dB bandwidth (KHz)	Maximum Limit (KHz)	Result
315	47	787.5	Pass

Details please see the following test plots.



10 DWELL TIME MEASUREMENT

10.1 LIMIT OF DWELL TIME

Each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in nso case less than 10 seconds.

10.2 TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100005	06/24/2010
Pre Amplifier	H.P.	HP8447E	2945A02715	06/24/2010
Bilog Antenna	SUNOL Sciences	JB3	A021907	06/24/2010

10.3 TEST PROCEDURE

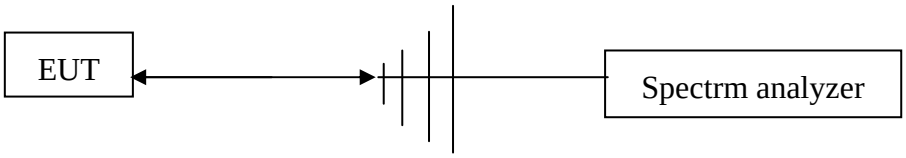
The EUT was placed on a turn table was 0.8meter above ground.

The signal was coupled to the specturm analyzer through an antenna.

Set SPA RBW:100KHz/30KHz,VBW:300KHz/10KHz, Span:0Hz

Set SPA trace max hold,then view.

10.4 TEST SETUP

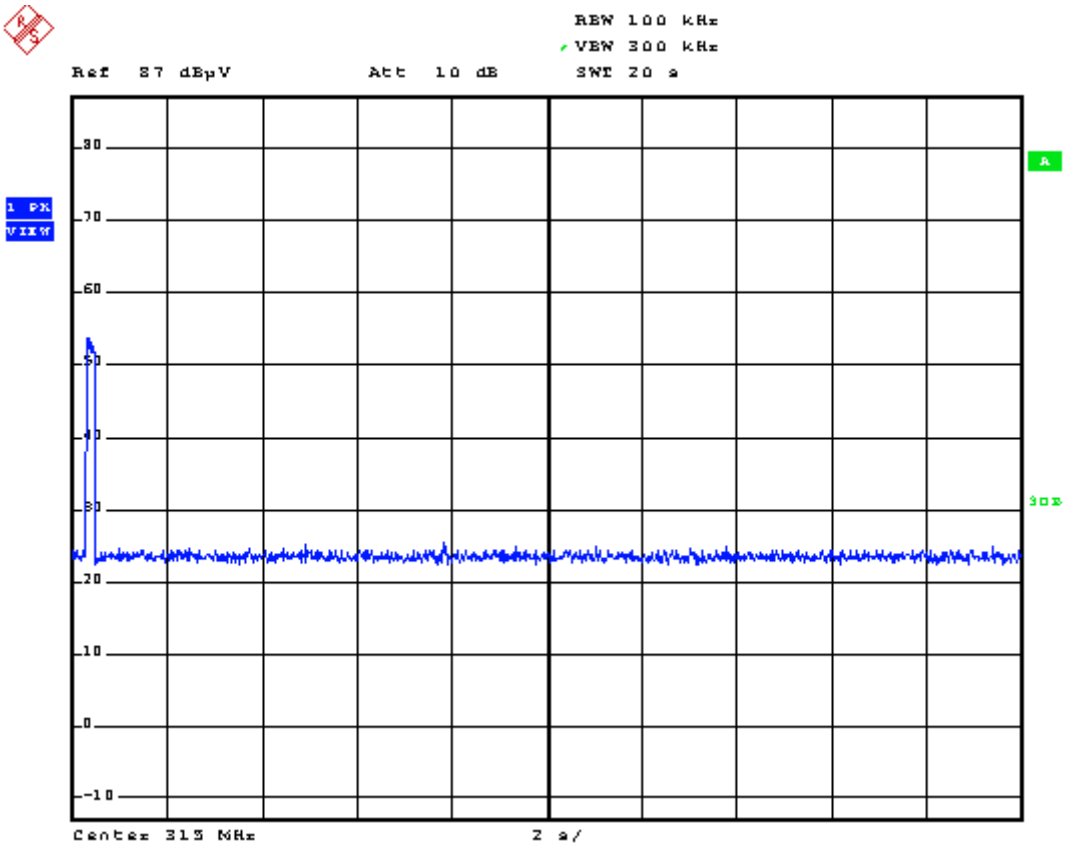


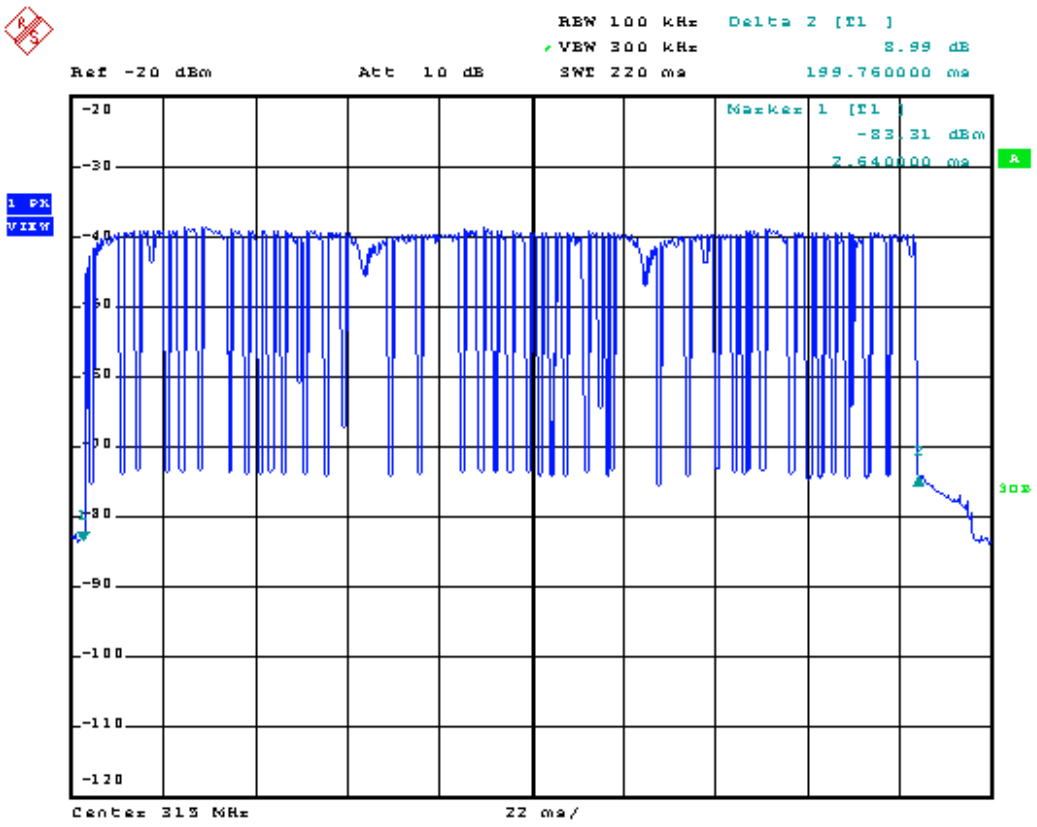
10.5 TEST RESULT

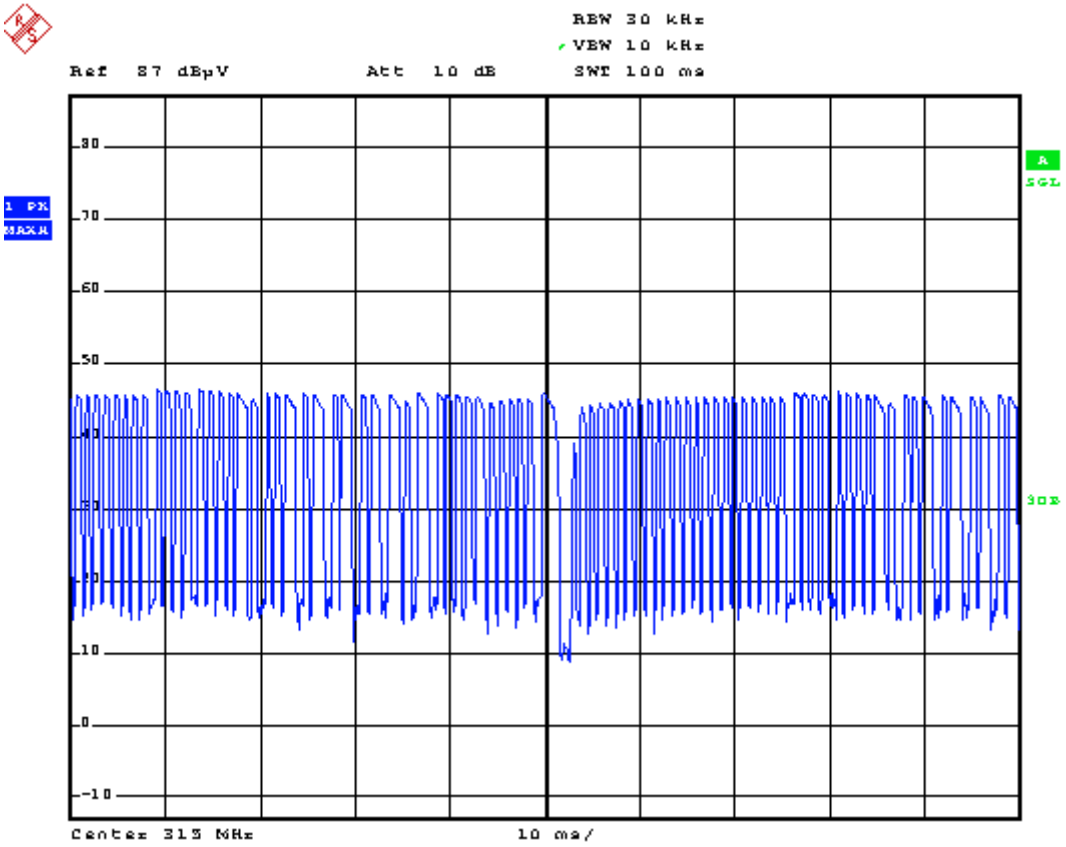
Ton/Toff (s)	Ton/Toff limits(s)	Result
0.200	Ton<1	Pass
See Note	Toff >30Ton	Pass

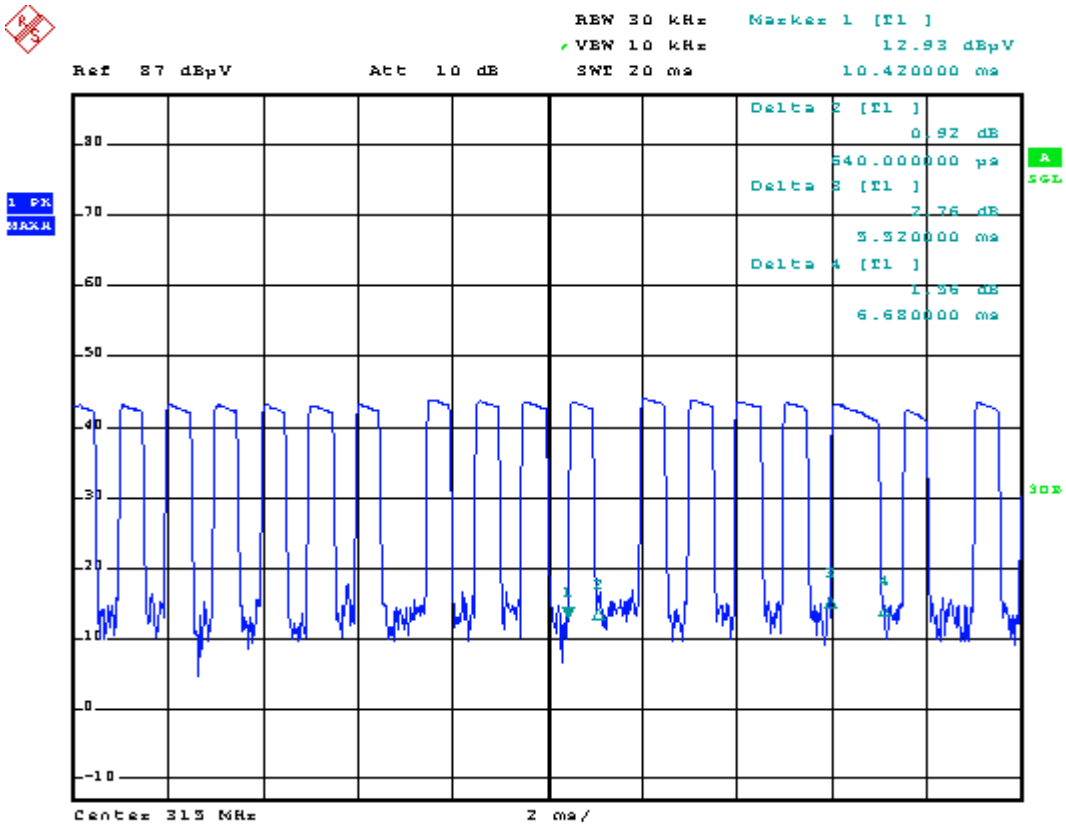
Note:For this product,it will cease transmittion with 200ms after activation.

Details please see the following test plots









11. Antenna requirement

11.1. Standard applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

11.2.Antenna connected construction

The antenna used in this product is integrated antenna and no consideration of replacement.