ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

Product Name:	**Transmitter of car alarm system**
Brand:	**N/A**
Model Name:	**TX303 (TX unit) and EG30-H (Main unit)**
Model Different:	**N/A**
FCC ID:	**M65TR01**
Report No.:	**ER/2007/60011**
Issue Date:	**Dec. 28, 2007**
Rule Part:	**§15.231(e)**
Prepared by:	**SuperNova Corp.**
	No. 34, Wu-Chuan 6 Rd., Wu-Ku Industrial Zone, Wu-Ku Hsiang Taipei Taiwan R.O.C.
Prepared by:	**SGS Taiwan Ltd.**
	No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.

VERIFICATION OF COMPLIANCE

Applicant:	SuperNova Corp. No. 34, Wu-Chuan 6 Rd., Wu-Ku Industrial Zone, Wu-Ku Hsiang Taipei Taiwan R.O.C.
Product Name:	Transmitter of car alarm system
Brand / Marketing Name:	N/A
FCC ID Number:	M65TR01
Model No.:	TX303 (TX unit) and EG30-2H (Main unit)
Model Difference:	N/A
File Number:	ER/2007/60011
Date of test:	Jun. 07, 2007 ~Dec. 08, 2007
Date of EUT Received:	Jun. 07, 2007

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.231(e).

The test results of this report relate only to the tested sample identified in this report.

Test By:	Sky Wang	***Date***	Dec. 28, 2007
	Sky Wang / Sr. Engineer		
Prepared By:	Eva Kao	***Date***	Dec. 28, 2007
	Eva Kao / Sr. Engineer		
Approved By:	Vincent Su	***Date***	Dec. 28, 2007
	Vincent Su / Manager		

Version

Version No.	Date
00	Dec. 28, 2007

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1. GENERAL INFORMATION

1.1 Product Description

The SuperNova Corp., Model: TX303 and EG30-2H (referred to as the EUT in this report) are a periodic Car Alarm remoter system which includes a CPU unit (which includes 433.92 receiver function) and a 303.875MHz transmitter unit.

A major technical descriptions of Transmitter is described as following:

A). Transmitter Operation Frequency: 303.875 MHz
B). Modulation: Pulse Modulation
C). Antenna Designation: Non-User Replaceable (Fixed)
D). Power Supply: 12 Vdc from car battery.
E). Silent Period: 15 second
Duration of Transmission Time: 0.229 second

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **M65TR01** filing to comply with Section 15.231(e) of the FCC Part 15, Subpart C Rules. The composite system (digital device) is compliance with Subpart B is authorized under a Doc procedure.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the address of SGS Taiwan Ltd. No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003 and CISPR 22/EN 55022 requirements. Site No. 1(3 &10 meters) Registration Number: 94644, Both OATS and Anechoic chamber (3 meters) was accredited by TAF (0513). Canada Registration Number: 4620A-1

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 Equipment Modifications

Not available for this EUT intended for grant.

2. SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. the Tx frequency was fixed which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Emissions (Not apply in the report)

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8 and 13 of ANSI C63.4-2003.

2.4 Limitation

(1) Conducted Emission (Not applicable in this report)

According to section 15.207(a) Conducted Emission Limits is as following.

Frequency range MHz	Limits dB (uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

(2) Radiated Emission

According to 15.231(e), Intentional radiators may operated at a periodic rate exceeding that specified in paragraph (a) and may be employed for any type of operation, including operation prohibited in paragraph (a), provided the intentional radiator complies with the provisions of paragraphs (b) through (d) of this Section, except the field strength table in paragraph (b) is replaced by the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious (microvolts/meter)
40.66 - 40.70	1,000	100
70 - 130	500	50
130 - 174	500 to 1,500 **	50 to 150 **
174 - 260	1,500	150
260 - 470	1,500 to 5,000 **	150 to 500 **
above 470	5,000	500

Remark: 1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of ξ 15.205
4. Emission spurious frequency which appearing within the Restricted Bands specified in provision of ξ15.205, then the general radiated emission limits in ξ 15.209 apply.
5. For the band 130-174MHz, uV/m at 3meters = 22.72727(F) – 2454.545;
For the band 260-470MHz uV/m at 3meters = 16.6667(F) – 2833.3333;
Where F is the frequency in MHz.
6. 303.875MHz limit = 16.6667 * 303.875 – 2833.3333= 2231.2602 uV/m
= 66.97dBuV/m

2.5 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

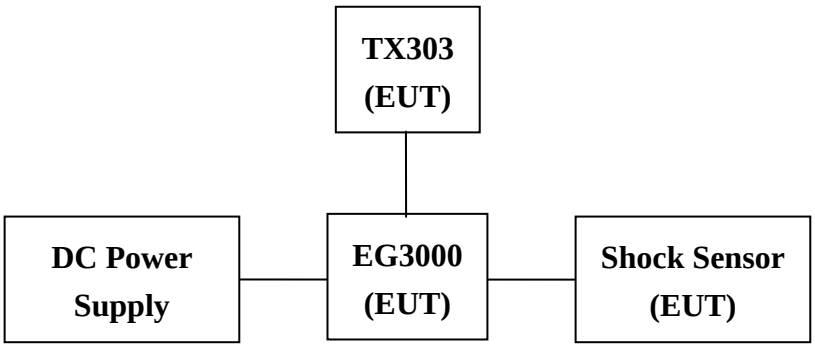


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	FCC ID	Series No.
1.	DC Power Supply	Topward	3303A	N/A	715856

3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207	Conducted Emission	N/A
§15.231(e)	Radiated Emission	Compliant
§15.231(c)	20dB Bandwidth	Compliant
	Duty Cycle Test (Pulse Modulation)	Compliant
§15.231(e)	Transmission and silent time Measurement	Compliant

4. Description of test modes

The EUT has been tested under engineering test mode condition. and the EUT staying in continuous transmitting mode.

The Frequency 303.875 MHz is chosen for testing.

5. CONDUCTED EMISSIONS TEST (NOT APPLY IN THE REPORT)

5.1 Measurement Procedure:

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

5.2 Test SET-UP (Block Diagram of Configuration)

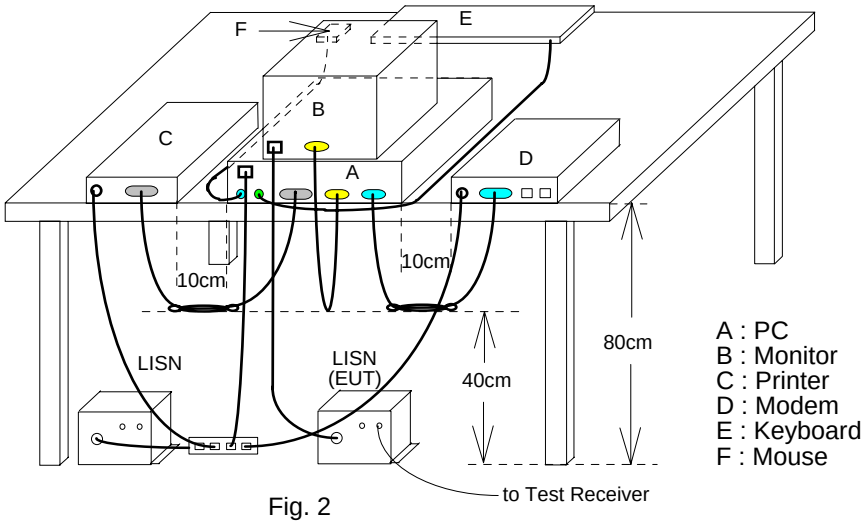


Fig. 2

5.3 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMC Analyzer	HP	8594EM	3624A00203	09/02/2007	09/03/2008
EMI Test Receiver	R&S	ESCS30	828985/004	06/09/2007	06/10/2008
Transient Limiter	HP	11947A	3107A02062	09/02/2007	09/03/2008
LISN	Rolf-Heine	NNB-2/16Z	99012	12/31/2006	12/30/2007
LISN	Rolf-Heine	NNB-2/16Z	99013	01/10/2007	01/09/2008
Coaxial Cables	FCC	FCC-LISN-50/250-25-2-01	04034	01/11/2007	01/10/2008

5.4 Measurement Result:

N/A

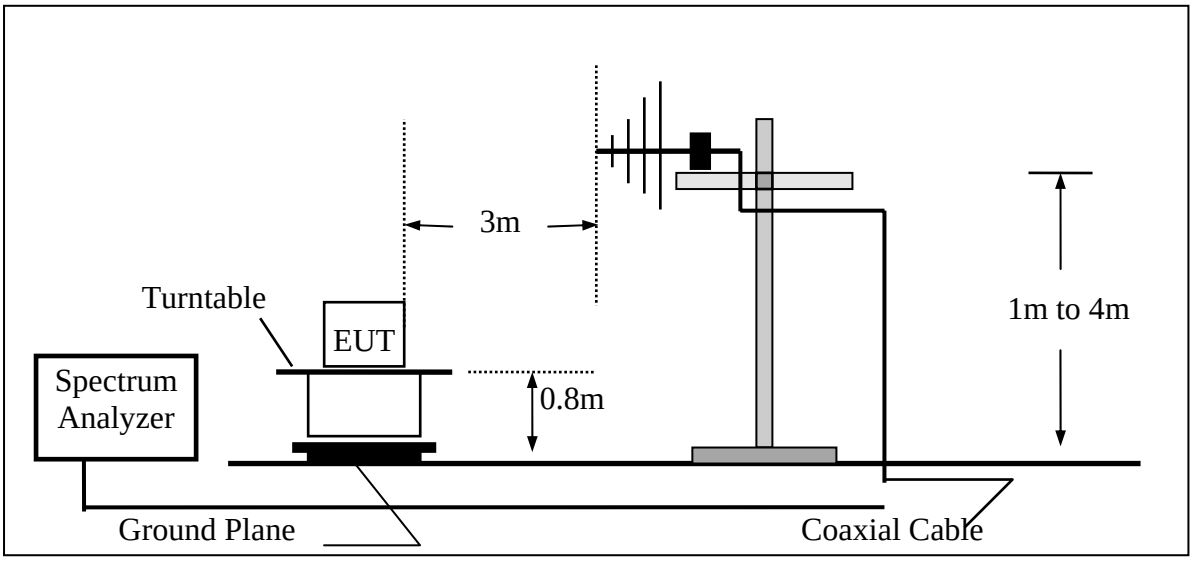
6. RADIATED EMISSION TEST

6.1 Measurement Procedure

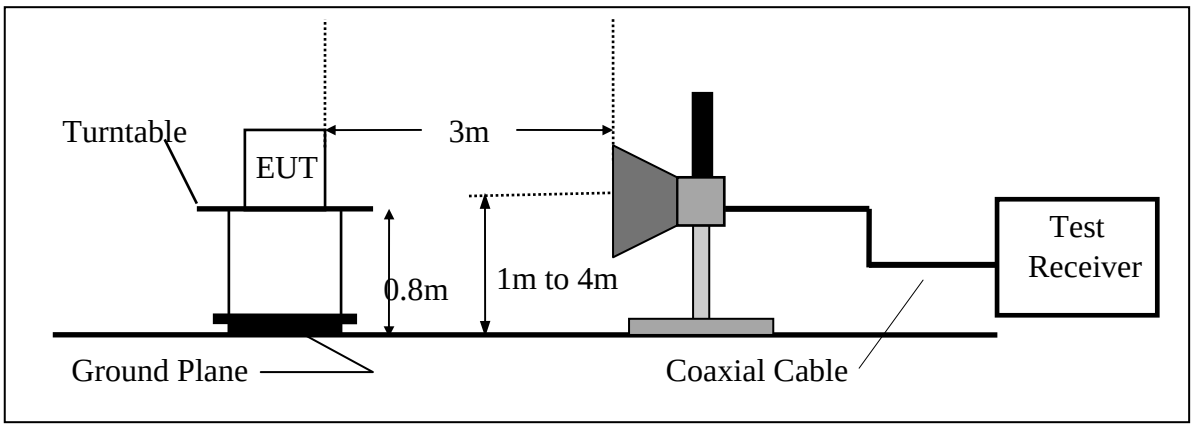
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

6.2 Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



6.3 Measurement Equipment Used:

966 Chamber					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/27/2007	04/27/2008
Spectrum Analyzer	R&S	FSP 40	100034	05/27/2007	05/26/2008
Spectrum Analyzer	Agilent	E7405A	US41160416	06/28/2008	06/29/2008
Bi-log Antenna	SCHWAZBECK	VULB9160	3224	11/14/2006	11/13/2007
Horn antenna	SCHWAZBECK	BBHA 9120D	309/320	08/16/2007	08/15/2008
Horn antenna	SCHWAZBECK	BBHA 9170	184/185	07/04/2007	07/03/2008
Pre-Amplifier	HP	8447D	2944A09469	07/19/2007	07/18/2008
Pre-Amplifier	HP	8494B	3008A00578	02/26/2007	02/25/2008
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	10/09/2006	10/08/2007
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2006	10/08/2007
Site NSA	SGS	966 chamber	N/A	11/17/2006	11/16/2007

6.4 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Average Value = Peak Value + 20 Log (Ton/Tp) ……. Pulse Modulation

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

6.5 Measurement Result

Operation Mode:	Transmitting Mode	Test Date:	Dec. 06, 2007
Fundamental Frequency:	303.875 MHz	Test By:	Jazz
Temperature :	25 ℃	Pol:	Vertical
Humidity :	65 %		

Freq. (MHz)	F /S	Ant.Pol. (H/V)	Peak Reading (dBuV)	AV Correct dB	Ant./CL CF(dB)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
303.88	F	V	77.41	- 3.08	-12.93	64.48	61.40	86.97	66.97	-5.57	AV
607.75	S	V	43.10	- 3.08	-5.83	37.27	34.19	66.97	46.97	-12.78	AV
911.63	S	V	35.38	- 3.08	- 1.07	34.31	31.23	66.97	46.97	-15.74	AV
1215.50	S	V	--	- 3.08	--	--	--	74.00	54.00		
1519.38	S	V	--	- 3.08	--	--	--	74.00	54.00		
1823.25	S	V	40.96	- 3.08	- 4.35	36.61	33.53	74.00	54.00	-20.47	AV
2127.13	S	V	40.81	- 3.08	- 2.80	38.01	34.93	74.00	54.00	-19.07	AV
2431.00	S	V	42.77	- 3.08	- 1.19	41.58	38.50	74.00	54.00	-15.50	AV
2734.88	S	V	--	- 3.08	--	--	--	74.00	54.00		
3038.75	S	V	39.07	- 3.08	0.56	39.63	36.55	74.00	54.00	-17.45	AV

Remark：

(1) + F/S F：denotes Fundamental Frequency；S： denotes Spurious Frequency

(2) EUT Orthogonal Axes：X denotes Laid on Table； Y denotes Vertical Stand .

(3) Measuring frequencies from 30 MHz to the 10th harmonic of fundamental frequency of 303.875 MHz。

(4) Dates of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(5) * Denotes spurious frequency, which falls within the Restricted Bands specified in provision of ξ15.205, then the general radiated emission limits in ξ 15.209 apply.

(6) Peak Setting: 30MHz – 1000MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 5GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms

Operation Mode:	Transmitting Mode	Test Date:	Dec. 06, 2007
Fundamental Frequency:	303.875MHz	Test By:	Alex
Temperature :	25 ℃	Pol:	Horizontal
Humidity :	65 %		

Freq. (MHz)	F /S	Ant.Pol. (H/V)	Peak Reading (dBuV)	AV Correct dB	Ant./CL CF(dB)	Peak Level (dBuV/m)	AV Level (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
303.88	F	H	82.49	- 3.08	-12.93	69.56	66.48	86.97	66.97	-0.49	AV
607.75	S	H	47.31	- 3.08	-5.83	41.48	38.40	66.97	46.97	-8.57	AV
911.63	S	H	42.78	- 3.08	- 1.07	41.71	38.63	66.97	46.97	-8.34	AV
1215.50	S	H	--	- 3.08	--	--	--	74.00	54.00		
1519.38	S	H	--	- 3.08	--	--	--	74.00	54.00		
1823.25	S	H	43.56	- 3.08	- 4.35	39.21	36.13	74.00	54.00	-17.87	AV
2127.13	S	H	41.68	- 3.08	- 2.80	38.88	35.80	74.00	54.00	-18.20	AV
2431.00	S	H	--	- 3.08	- 1.19	--	--	74.00	54.00		
2734.88	S	H	--	- 3.08	--	--	--	74.00	54.00		
3038.75	S	H	--	- 3.08	0.56	--	--	74.00	54.00		

Remark：

(1) + F/S F：denotes Fundamental Frequency；S： denotes Spurious Frequency

(2) EUT Orthogonal Axes：X denotes Laid on Table； Y denotes Vertical Stand .

(3) Measuring frequencies from 30 MHz to the 10th harmonic of fundamental frequency of 303.875 MHz。

(4) Dates of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(5) * Denotes spurious frequency, which falls within the Restricted Bands specified in provision of ξ15.205, then the general radiated emission limits in ξ 15.209 apply.

(6) Peak Setting: 30MHz – 1000MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 5GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms

7. 20DB OCCUPIED BANDWIDTH

7.1 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation
3. Set SPA Center Frequency = fundamental frequency, RBW, VBW= 10KHz, Span =100KHz.
4. Set SPA Max hold. Mark peak, -20dB.

7.2 Test SET-UP (Block Diagram of Configuration)

Same as 6.3 Radiated Emission Measurement.

7.3 Measurement Equipment Used:

Same as 6.3 Radiated Emission Measurement.

7.4 Measurement Results

Refer to attached data chart.

The center frequency **f_c is 303.8756MHz,** according to the Rules, section 15.231(e)(C), the Bandwidth of Center Frequency at-20dB should be calculated as following:

303.8756 X 0.0025 = 0.7596MHz

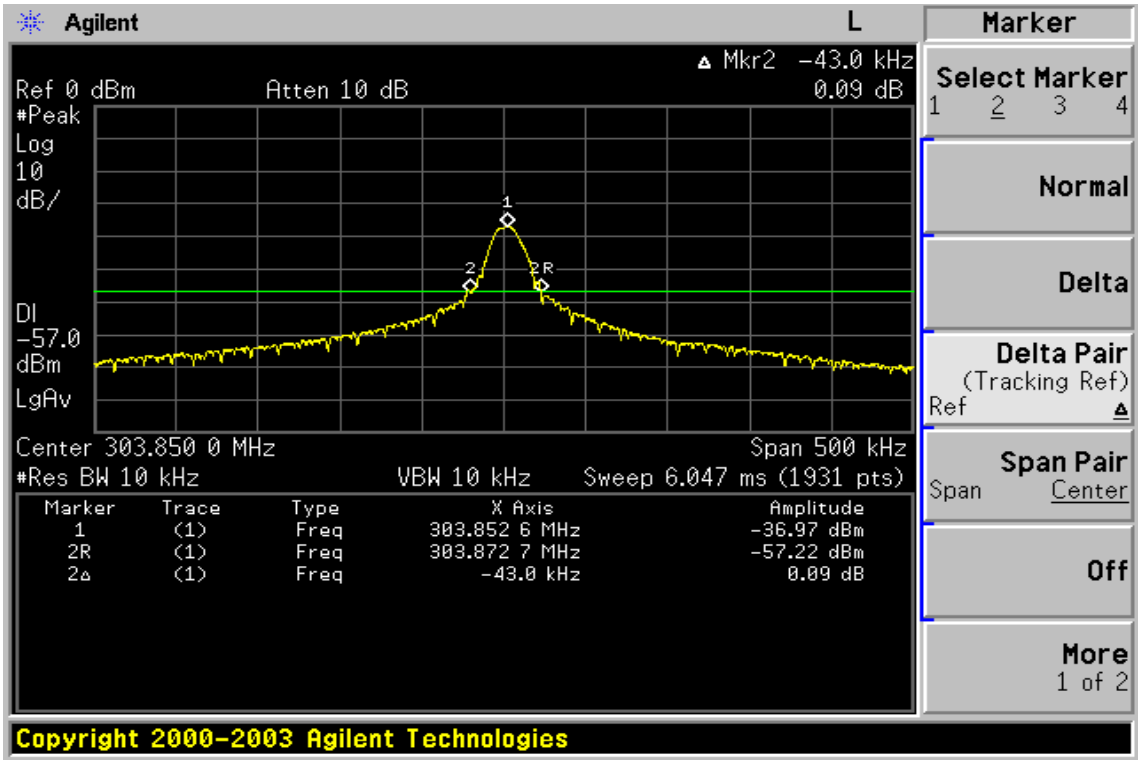
So, the Uper/Lower frequencies limit should be specified as:

$f_{(U)} = f_c + \Delta f/2 = 303.875 + 0.3798 = 304.254$(MHz)

$f_{(L)} = f_c - \Delta f/2 = 303.875 - 0.3798 = 303.4952$ (MHz)

Measurement Result:
-20dB bandwidth = 43.0kHz within allowed frequency range.

20dB Band Width Test Data



8. DUTY CYCLE MEASUREMENT

8.1 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set ETU normal operating mode.
3. Set SPA Center Frequency = fundamental frequency, RBW, VBW= 100KHz, Span =0 Hz. Adjacent sweep.
4. Set SPA View. Mark delta.

8.2 Test SET-UP (Block Diagram of Configuration)

Same as 6.3 Radiated Emission Measurement.

8.3 Measurement Equipment Used:

Same as 6.3 Radiated Emission Measurement.

8.4 Measurement Results:

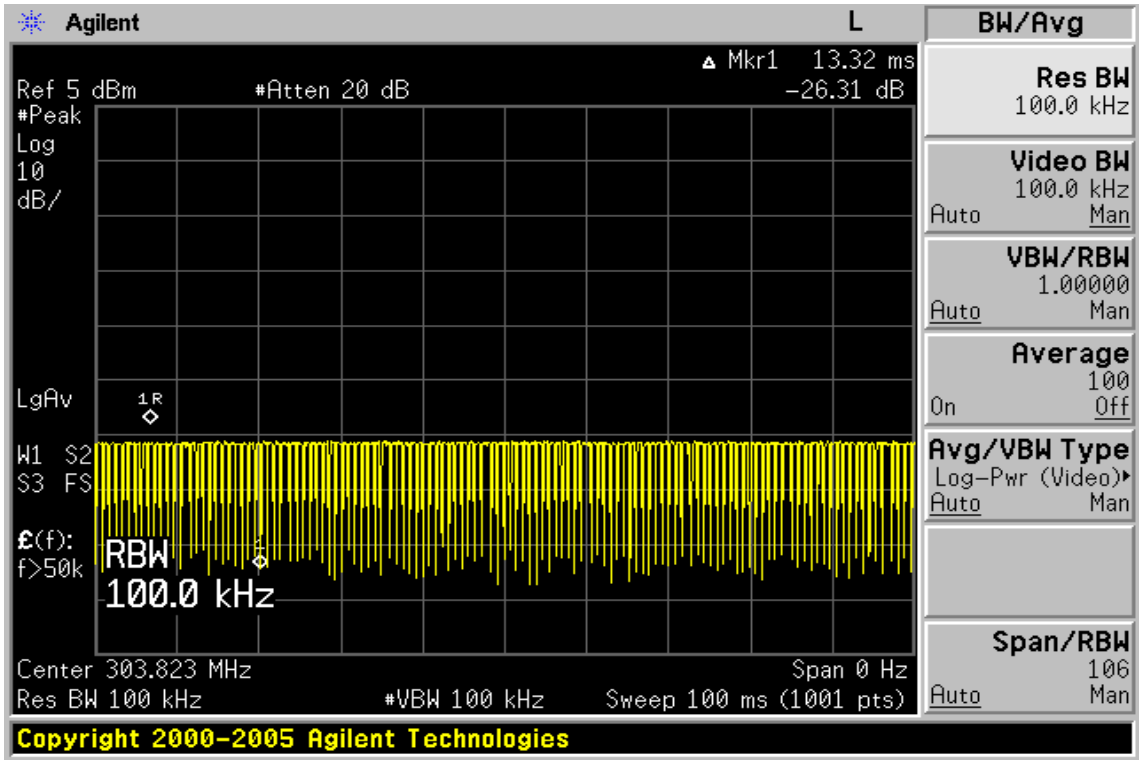
Ton = 0.56(ms)*120 + 0.288(ms)*10 = 70.08(ms)

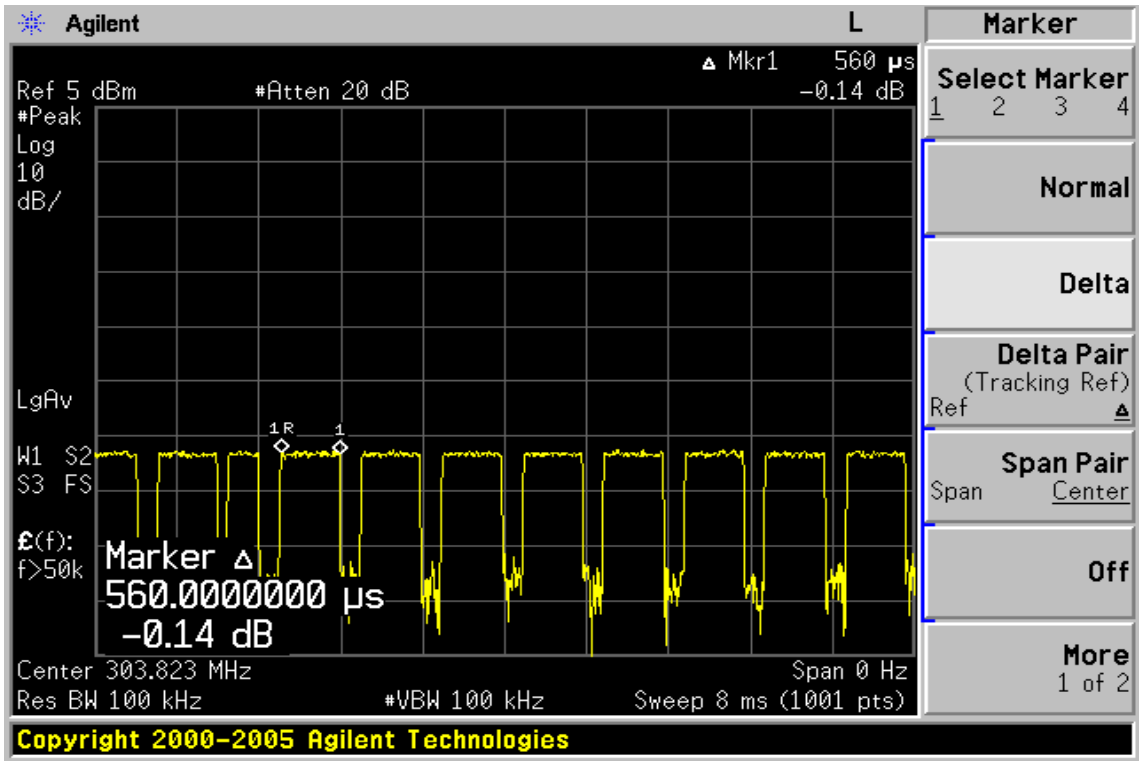
Tp= 100 (ms) max

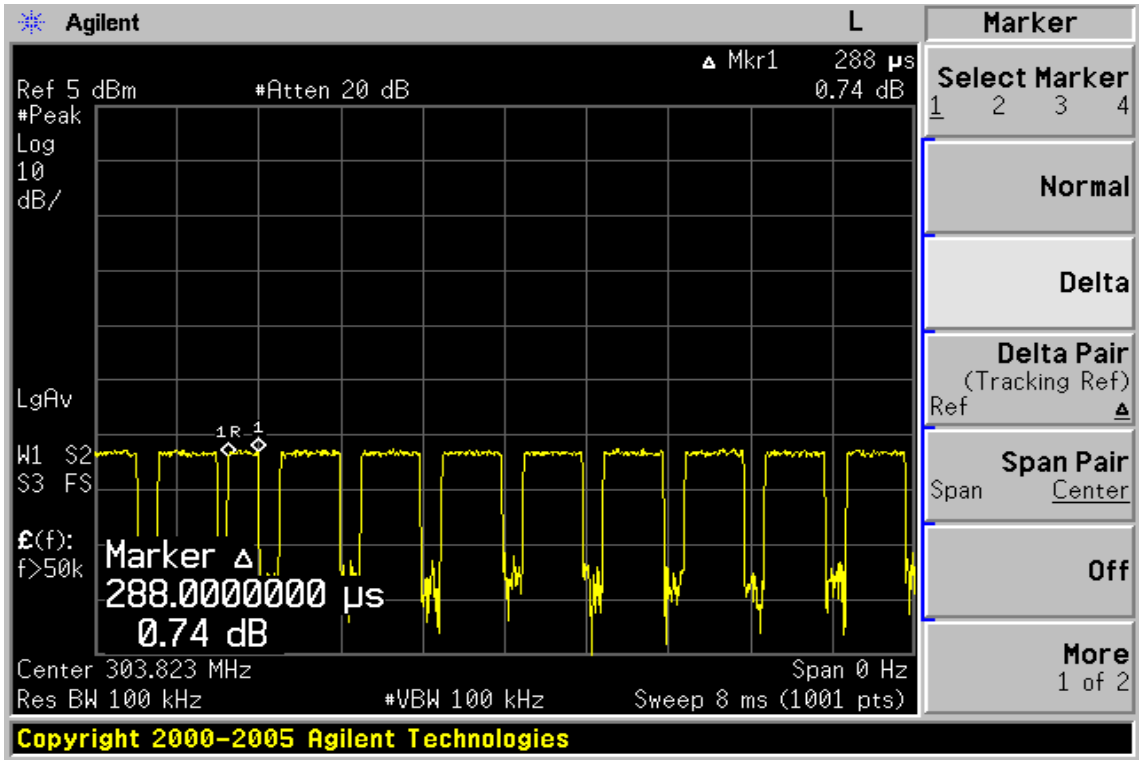
Average Correction Factory = 20log (Ton/Tp) =20log (70.08/100)

=-3.088 dB

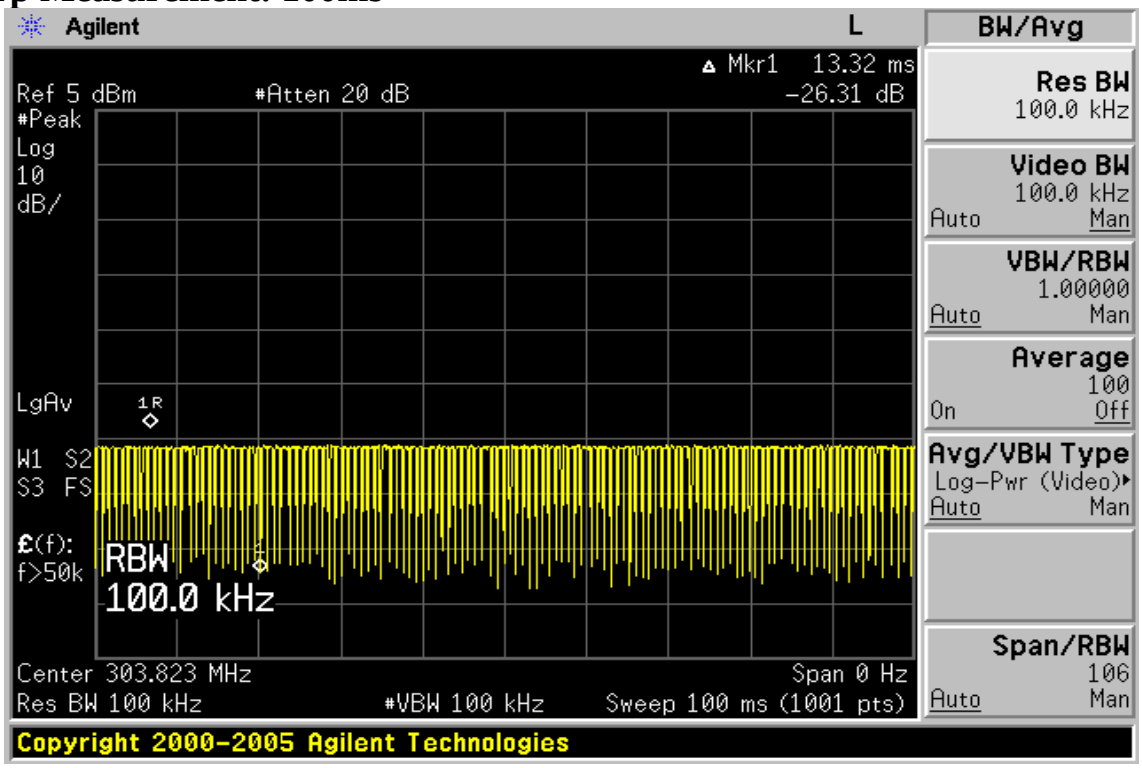
Ton Measurement:







Tp Measurement: 100ms



9. TRANSMISSION AND SILENT TIME MEASUREMENT:

15.231(e) devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each trans mission 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 no case less than 10 seconds.

9.1 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set SPA Center Frequency = fundamental frequency, RBW, VBW= 1MHz, Span =0Hz. Sweep Time= 30s.
3. Set EUT as normal operation.
4. Set SPA Max hold. Delta Mark.

9.2 Test SET-UP (Block Diagram of Configuration)

Same as 6.3 Radiated Emission Measurement.

9.3 Measurement Equipment Used:

Same as 6.3 Radiated Emission Measurement.

9.4 Measurement Results

Silent Period: 15.1 (s) – 0.229 (s), Refer to attached data chart.

Duration of Transmission Time:0.229 ms

Silent period limit: at least 30 times or no less than 10s.

Result: PASS, The worst case of silent Period is more than 10s.