

CFR 47 FCC Part 15.247

TEST REPORT

Product : **Deluxe 2-way Alarm & Remote start**

Trade Name : N/A

Model Number : 157

FCC ID : ELVNTRLG

Prepared for

Nutek Corporation

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Prepared by

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Table of Contents

1	General Information	5
1.1	Description of Equipment Under Test	5
1.2	Table for Carrier Frequencies	6
1.3	Hopping Sequence	6
1.4	Details of Tested Supporting System	7
1.5	Test Facility	8
1.6	Test Equipment	9
1.7	Summary of Measurement	10
1.8	Justification	11
2	Test specifications	12
2.1	Test standard	12
2.2	Operation mode	12
2.3	Test Step of EUT	12
3	20dB Bandwidth test	13
3.1	Limit	13
3.2	Configuration of Measurement	13
3.3	Test Procedure	13
3.4	Test Result	13
4	Carrier Frequency Separation test	16
4.1	Limit	16
4.2	Configuration of Measurement	16
4.3	Test Procedure	16
4.4	Test Result	16
5	Number of hopping frequencies test	19
5.1	Configuration of Measurement	19
5.2	Test Procedure	19
5.3	Test Result	19
6	Time of Occupancy (dwell time) test	21
6.1	Limit	21
6.2	Configuration of Measurement	21
6.3	Test Procedure	21
6.4	Test Result	21
7	Maximum Output Power test	23
7.1	Limit	23
7.2	Configuration of Measurement	23
7.3	Test Procedure	23
7.4	Test Result	23

8	RF Conducted spurious emission	26
8.1	Limit	26
8.2	Configuration of Measurement	26
8.3	Test Procedure	26
8.4	Test Result	26
9	RF Radiated spurious emission test	30
9.1	Limit	30
9.2	Configuration of Measurement	30
9.3	Test Procedure	31
9.4	Test Result	31
10	AC Power Line Conducted Emission test	36
10.1	Limits	36
10.2	Configuration of Measurement	36
10.3	Test Procedures	36
10.4	Test Result	36
11	Photographs of Test	39
11.1	Power Line Conducted Emission Measurement	39
11.2	Radiated Emission Measurement	40
12	Photographs of EUT	42

Statement of Compliance

Applicant: Nutek Corporation
Manufacturer: Nutek Corporation
Product: Deluxe 2-way Alarm & Remote start
Model No.: 157
Tested Power Supply: DC 3.7V from battery
Date of Final Test: Jul. 02, 2013
Revision of Report: Rev. 02

Configuration of Measurements and Standards Used :

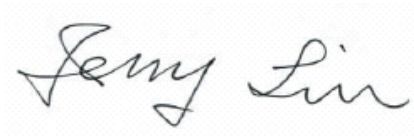
FCC Rules and Regulations Part 15 Subpart C

I HEREBY CERTIFY THAT: The data shown in this report were made in accordance with the procedures given in ANSI C63.4, and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

- Note:** 1. The result of the testing report relate only to the item tested.
2. The testing report shall not be reproduced expect in full, without the written approval of IETC

Report Issued: 2013/07/18

Project Engineer: 
Elli Chang

Approved: 
Jerry Liu

1 General Information

1.1 Description of Equipment Under Test

- Product** : Deluxe 2-way Alarm & Remote start
- Model Number** : 157
- Applicant** : **Nutek Corporation**
No.167, Lane 235, Bauchiau Rd., Shindian City, Taipei County
23145, Taiwan
- Manufacturer** : **Nutek Corporation**
No.167, Lane 235, Bauchiau Rd., Shindian City, Taipei County
23145, Taiwan
- Power Supply** : DC 3.7V from battery
- Operating Frequency** : 909.333MHz ~ 918.769MHz
- Channel Number** : 25 channels
- Type of Modulation** : FSK
- Antenna Description** : This device uses Helix antenna.
Antenna gain 0dBi.
The antenna is integral to the device, thereby meeting the
requirement of FCC 15.203.
- Date of Test** : Jun. 11 ~ Jul. 02, 2013
- Additional Description** : 1) The Model Number “**157**” is representative selected in the test
and included in this report.
2) For more detail specification about EUT, please refer to the
user’s manual.

1.2 Table for Carrier Frequencies

	FC (MHz)		FC (MHz)		FC (MHz)
CH0	909.3330	CH9	913.2000	CH18	916.3240
CH1	909.6590	CH10	913.5480	CH19	916.6830
CH2	910.0490	CH11	913.8820	CH20	917.0290
CH3	910.4000	CH12	914.2330	CH21	917.7140
CH4	910.7370	CH13	914.5810	CH22	918.0690
CH5	911.1110	CH14	914.9470	CH23	918.4000
CH6	911.4670	CH15	915.2820	CH24	918.7690
CH7	912.5000	CH16	915.6360		
CH8	912.8420	CH17	916.0000		

1.3 Hopping Sequence

6, 10, 7, 5, 8, 11, 14, 16, 13, 19, 24, 22, 23, 18, 21, 17, 20, 15, 12, 9, 4, 0, 2, 1, 3

1.4 Details of Tested Supporting System

1.4.1 Power Adapter

Model Number	:	DSC-5WU-05 FUS
Manufacturer	:	Nutek
Power Input	:	100-240Vac, 50/60Hz, 0.2A
Power Output	:	5Vdc, 0.5A
Power Cable	:	Non-shielded, Detachable, 0.7m, w/o core

1.5 Test Facility

- Site Description** : ☑Conducted 2 ☑OATS 1 ☑RF Test Room
- Name of Firm** : Interocean EMC Technology Corp.
- Company web** : <http://www.ietc.com.tw>
- Location** : No. 5-2, Lin 1, Tin-Fu, Lin-Kou Dist., New Taipei City, Taiwan 244, R.O.C.
- Site Filing** :
- Federal Communication Commissions – USA
Registration No.: 96399 (OATS 1 & 2)
Registration No.: 518958 (OATS 3)
Designation No.: TW1020
 - Voluntary Control Council for Interference by Information Technology Equipment (VCCI) – Japan
Member No.: 1349
Registration No. (Conducted Room): C-1094
Registration No. (Conducted Room): T-1562
Registration No. (OATS 1): R-1040; G-274
Registration No. (OATS 2): R-1041
 - Industry Canada (IC)
OUR FILE: 46405-4437 Submission: 145171
Registration No. (OATS 1): Site# 4437A-1
Registration No. (OATS 2): Site# 4437A-2
Registration No. (OATS 3): Site# 4437A-3
- Site Accreditation** :
- Bureau of Standards and Metrology and Inspection (BSMI) – Taiwan, R.O.C.
Accreditation No.:
SL2-IN-E-0026 for CNS13438 / CISPR22
SL2-R1-E-0026 for CNS13439 / CISPR13
SL2-R2-E-0026 for CNS13439 / CISPR13
SL2-A1-E-0026 for CNS13783-1 / CISPR14-1
SL2-L1-E-0026 for CNS 14115 / CISPR 15
 - Taiwan Accreditation Foundation (TAF)
Accrditation No.: 1113
 - TÜV NORD
Certificate No: TNTW0801R-04



1.6 Test Equipment

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100836	2013/08/08
Biconical Antenna	Schwarzbeck	BBA 9106	VHA 9103-2419	2014/03/27
Log Antenna	Schwarzbeck	UHALP 9108 A	0739	2014/03/27
Pre-Amplifier	SCHAFFNER	CPA9231A	3351	2014/01/16
RF Cable	IETC	8DFB	CBL14	2013/07/12
Spectrum Analyzer	R&S	FSP40	100478	2014/05/26
Preamplifier	Agilent	8449B	3008A01434	2014/05/07
Preamplifier	Agilent	83050A	3950A00225	2013/08/28
Horn Antenna	COM-POWER	AH-118	10081	2014/05/30
Horn Antenna	Schwarzbeck	BBHA 9120	9120D-583	2014/05/12
Horn Antenna	Schwarzbeck	BBHA 9170	213	2013/07/24
Cable	HARBOUR	27478LL142	CBL22	2013/09/27
EMI Test Receiver	Rohde & Schwarz	ESCS30	100135	2013/08/14
RF Cable	HARBOUR	RG-58/U	CBL48	2013/07/31
L.I.S.N.	Schaffner	MN2050D	1597	2013/07/22
L.I.S.N.	Rohde & Schwarz	ESH3-Z5	100176	2013/07/29

Note: The above equipments are within the valid calibration period.

1.7 Summary of Measurement

Report Clause	Test Parameter	Reference Document CFR47 Part15	Results
3	20dB Bandwidth test	§15.247(a)(1)	Pass
4	Carrier Frequency Separation test	§15.247(a)(1)	Pass
5	Number of hopping frequencies test	§15.247(a)(1)	Pass
6	Time of Occupancy (dwell time) test	§15.247(a)(1)	Pass
7	Maximum Peak output power test	§15.247(b)	Pass
8	RF Conducted spurious emission	§15.247(c)	Pass
9	RF Radiated spurious emission test	§15.205, 15.209	Pass
	Emission on the Band Edge test	§15.247(d)	Not Applicable
10	AC Power Line Conducted Emission test	§15.207	Pass

1.8 Justification

The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of the frequency band were all arrive limit requirement, thus we evaluate the EUT pass the specified test.

2 Test specifications

2.1 Test standard

The EUT was performed according to FCC Part 15 Subpart C Section 15.247 procedure and setup followed by ANSI C63.4, 2003 requirements.

2.2 Operation mode

By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "X axis" position was the worst, then the final test was executed the worst condition and test data were recorded in this report

The EUT was operated in continuous transmission mode during all of the tests.



X axis mode



Y axis mode



Z axis mode

2.3 Test Step of EUT

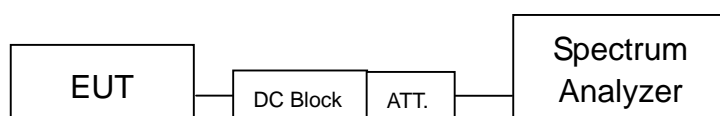
- 2.3.1 Setup the fixture to EUT for power supplying.
- 2.3.2 Turn on the power of all equipment.
- 2.3.3 Let the EUT continuous transmission. Executed the test.

3 20dB Bandwidth test

3.1 Limit

For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

3.2 Configuration of Measurement



3.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

The 20dB bandwidth per FCC §15.247(a)(1) was measured using a 50 ohm spectrum analyzer with the resolutions bandwidth set at 10 kHz, the video bandwidth \geq RBW, and the SPAN may equal to approximately 2 to 3 time the 20dB bandwidth.

3.4 Test Result

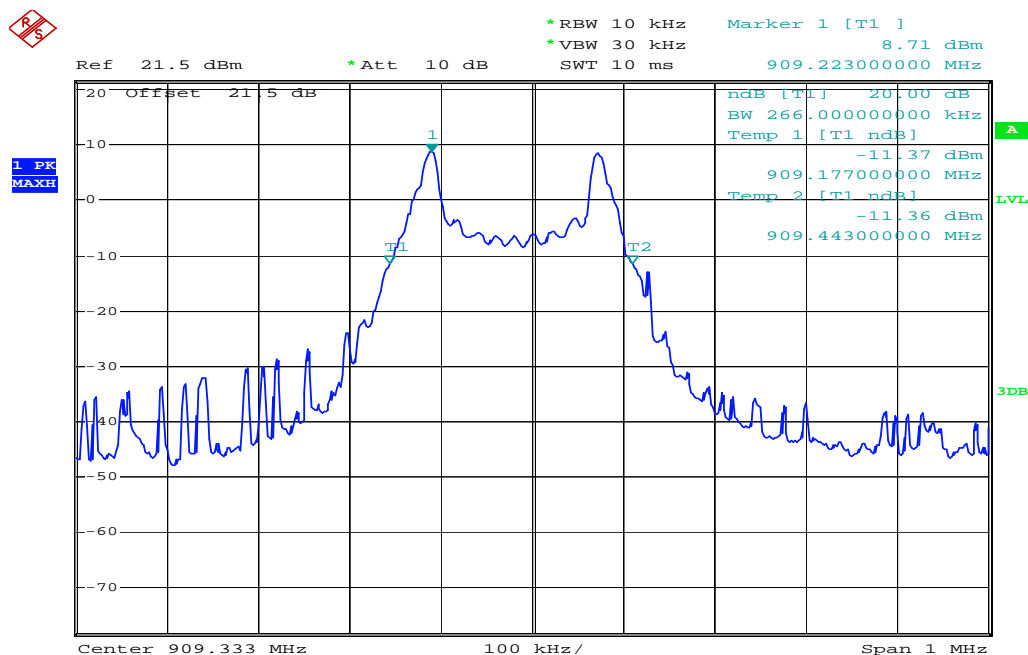
PASS.

The final test data is shown as following pages.

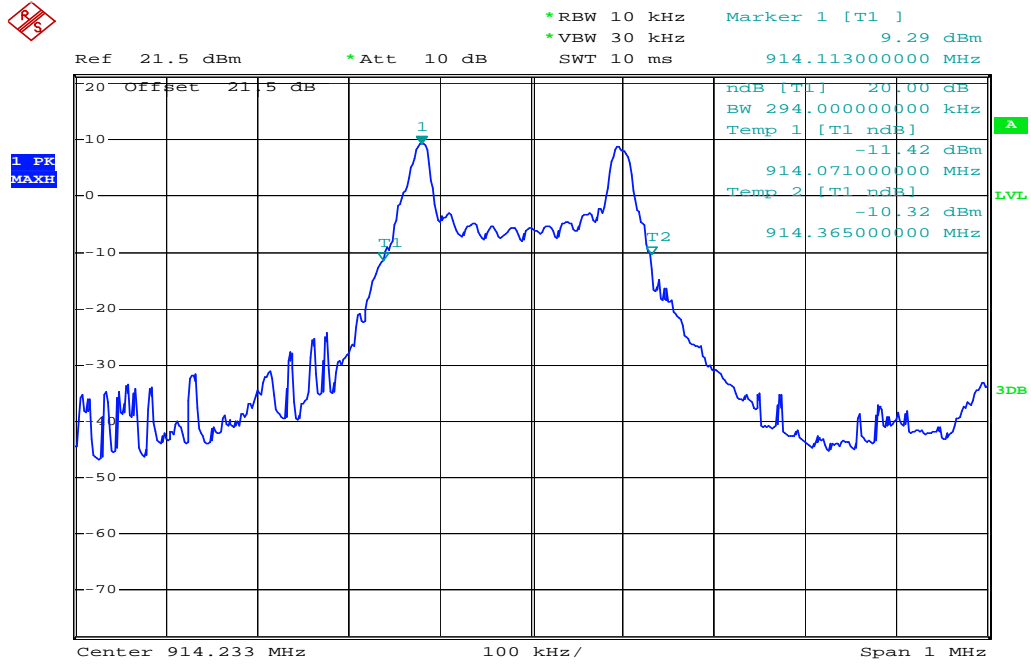
20dB bandwidth

Modulation	CH No.	Freq. (MHz)	20dB Bandwidth (kHz)	Limit (kHz)
FSK	0	909.333	266.00	250 - 500
	12	914.233	294.00	250 - 500
	24	918.769	260.00	250 - 500

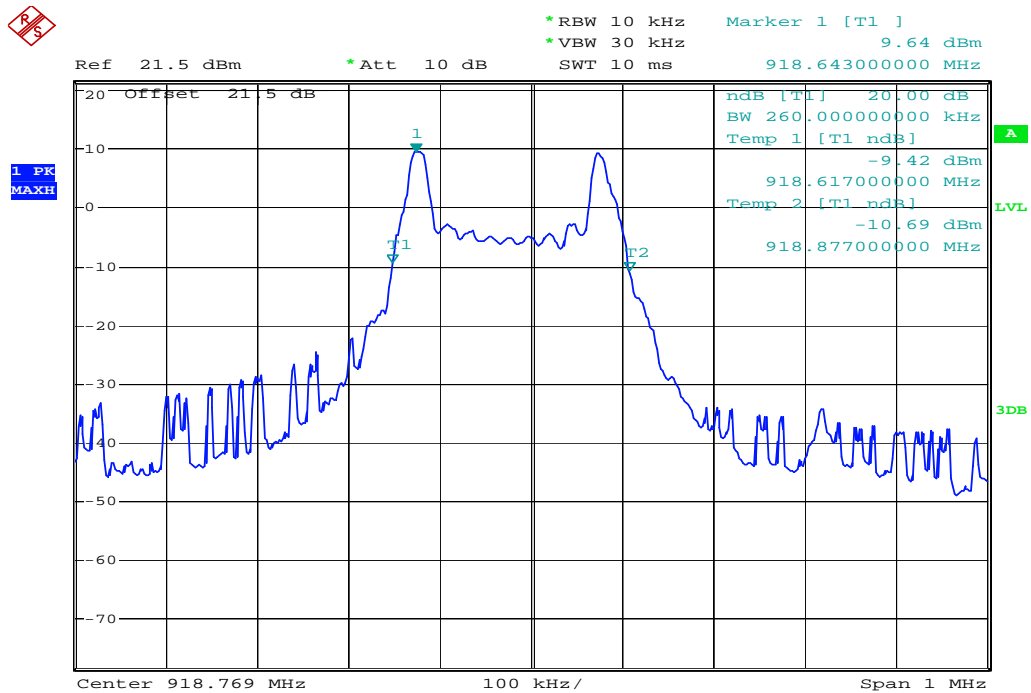
CH0 909.333MHz



CH12 914.233MHz



CH24 918.769MHz

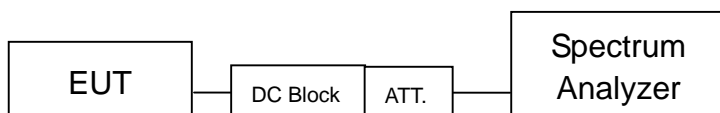


4 Carrier Frequency Separation test

4.1 Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

4.2 Configuration of Measurement



4.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

The carrier frequency separation per FCC Part15.247(a)(1) was measured using a 50 ohm spectrum analyzer with the resolutions bandwidth set at $\geq 1\%$ of the span, the video bandwidth \geq RBW, and the SPAN was wide enough to capture the peaks of two adjacent channels.

4.4 Test Result

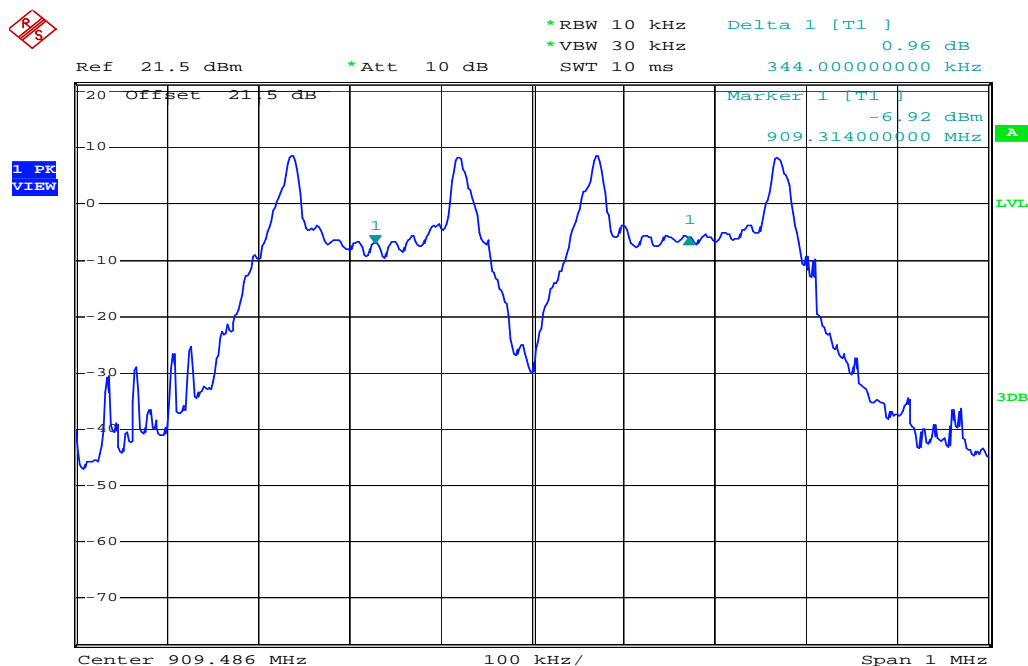
PASS.

The final test data is shown as following pages.

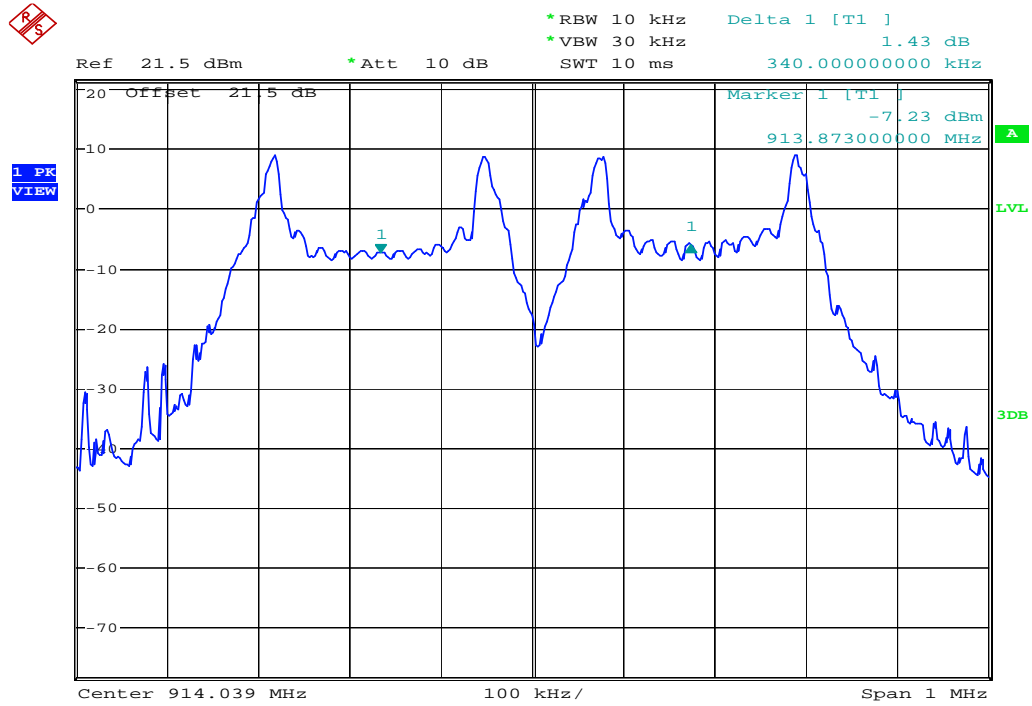
Carrier Frequency Separation test

Modulation type	Channel	Frequency (MHz)	Separation (kHz)
FSK	0 - 1	909.333 - 909.659	344
FSK	11 - 12	913.882 - 914.233	340
FSK	23 - 24	918.400 - 918.769	356

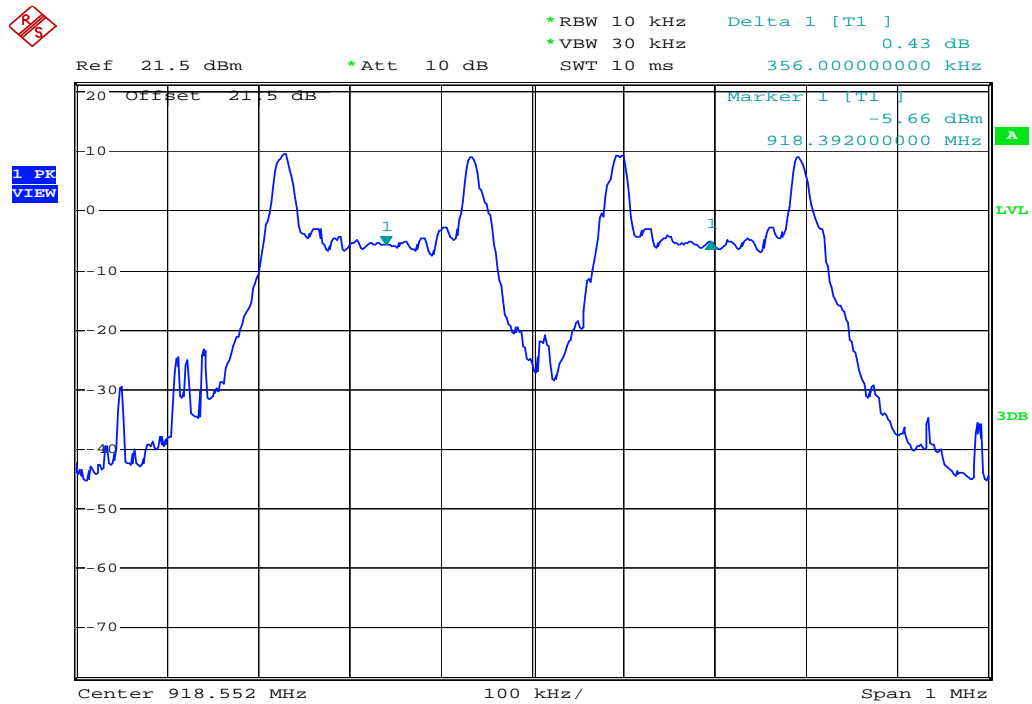
Channel Separation (CH0 – CH1)



Channel Separation (CH11 – CH12)

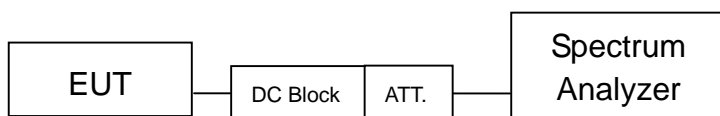


Channel Separation (CH23 – CH24)



5 Number of hopping frequencies test

5.1 Configuration of Measurement



5.2 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

The number of hopping frequencies per FCC Part15.247(a)(1) was measured using a 50 ohm spectrum analyzer with the resolutions bandwidth set at $\geq 1\%$ of the span, the video bandwidth \geq RBW, and the SPAN was the frequency band of operation.

5.3 Test Result

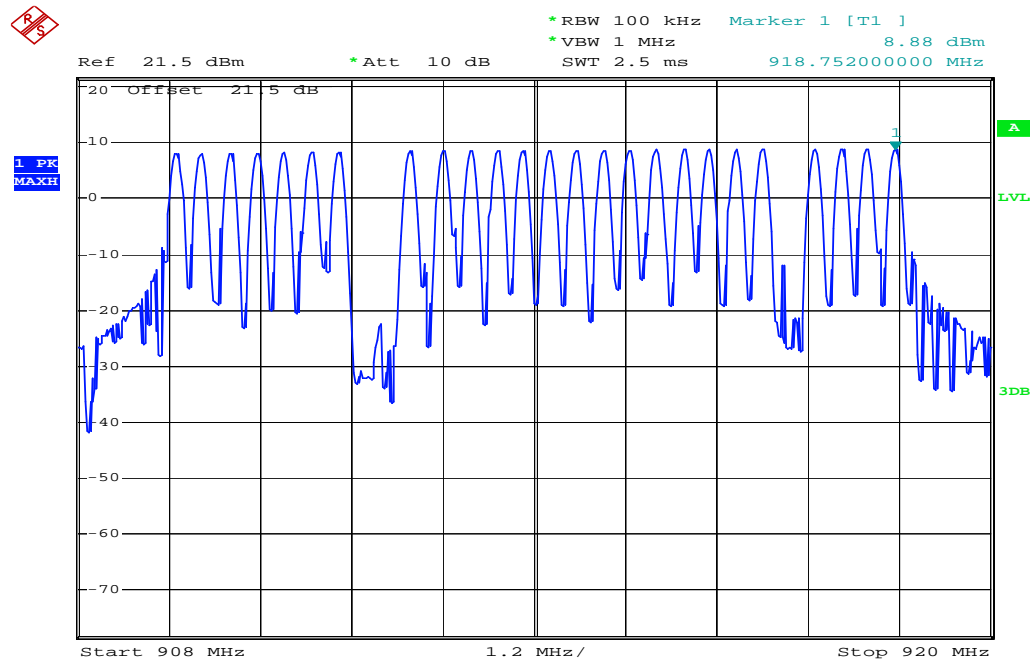
PASS.

The final test data is shown as following pages.

Number of hopping frequencies test

Modulation	No. of Hopping CH.
FSK	25

Channel Number



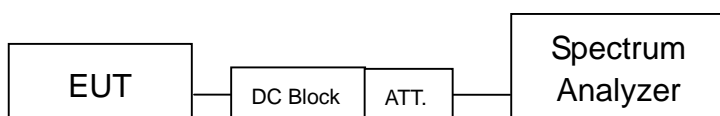
5/1/2013 10:51:40

6 Time of Occupancy (dwell time) test

6.1 Limit

For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

6.2 Configuration of Measurement



6.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

According to FCC Part15.247(a)(1) the time of occupancy (dwell time) was measured using a 50 ohm spectrum analyzer with the resolutions bandwidth set at 1MHz, the video bandwidth \geq RBW and the zero span function of spectrum analyzer was enable. The EUT has its hopping function enable.

6.4 Test Result

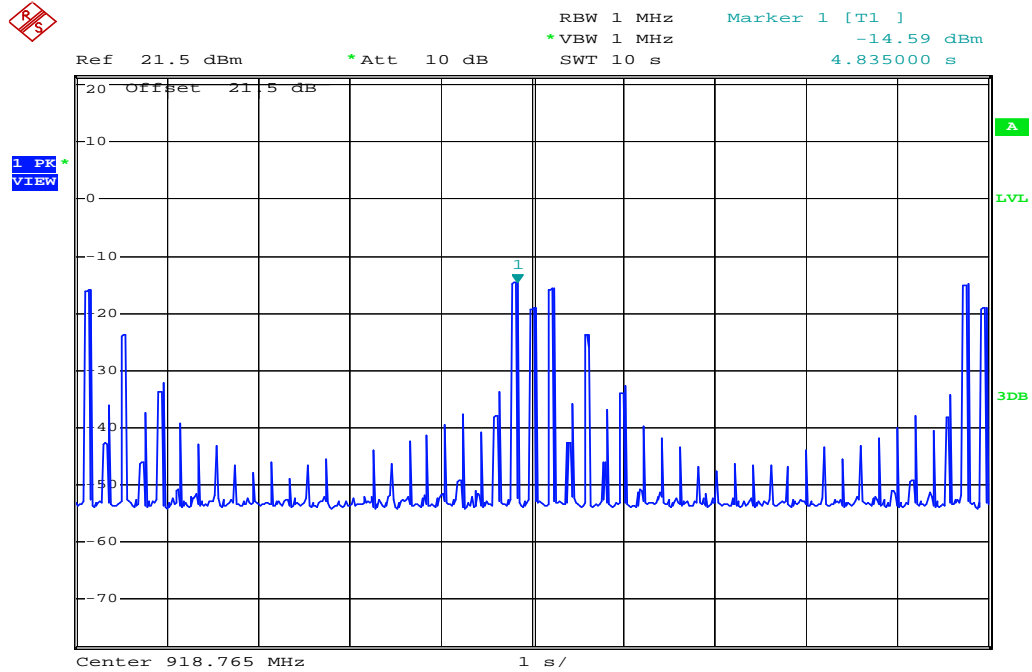
PASS.

The final test data is shown as following pages.

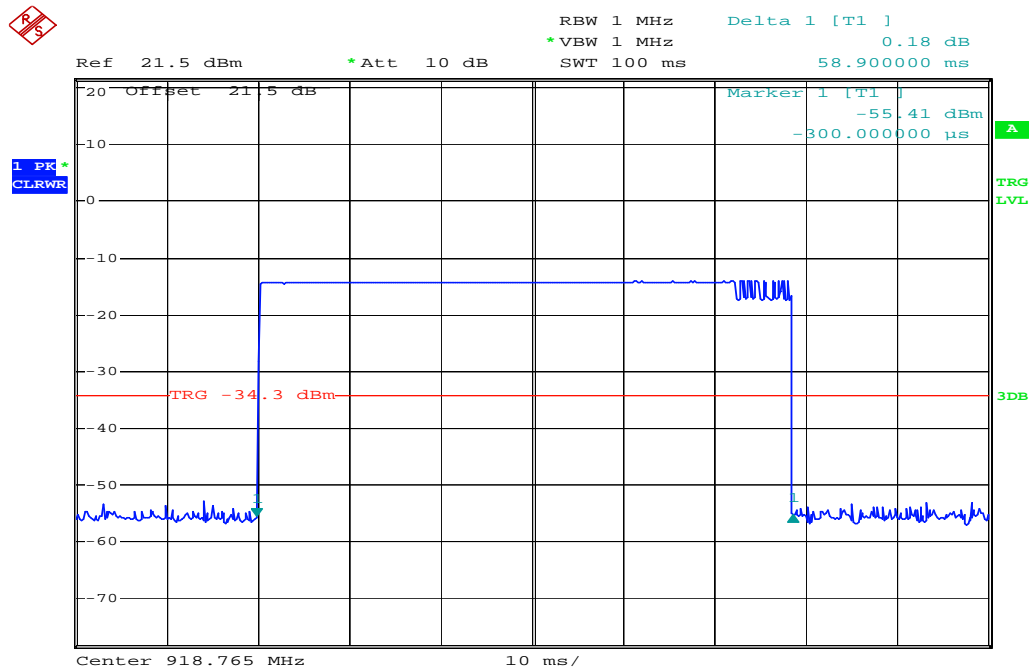
Time of Occupancy (dwell time) test

3 occurrences in 10 seconds x 58.9 ms = 176.7 ms which is less than 400 ms.

Dwell time-1



Dwell time-2

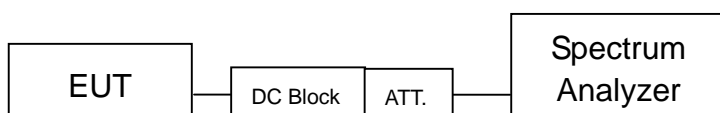


7 Maximum Output Power test

7.1 Limit

For frequency hopping systems operating in the 902–928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

7.2 Configuration of Measurement



7.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

For FCC Part 15.247(b) the power output per was measured on the EUT using a 50 ohm SMA cable connected to peak Spectrum Analyzer. Peak output power was read directly from Spectrum Analyzer. The test was performed at 3 channels (lowest, middle and highest).

7.4 Test Result

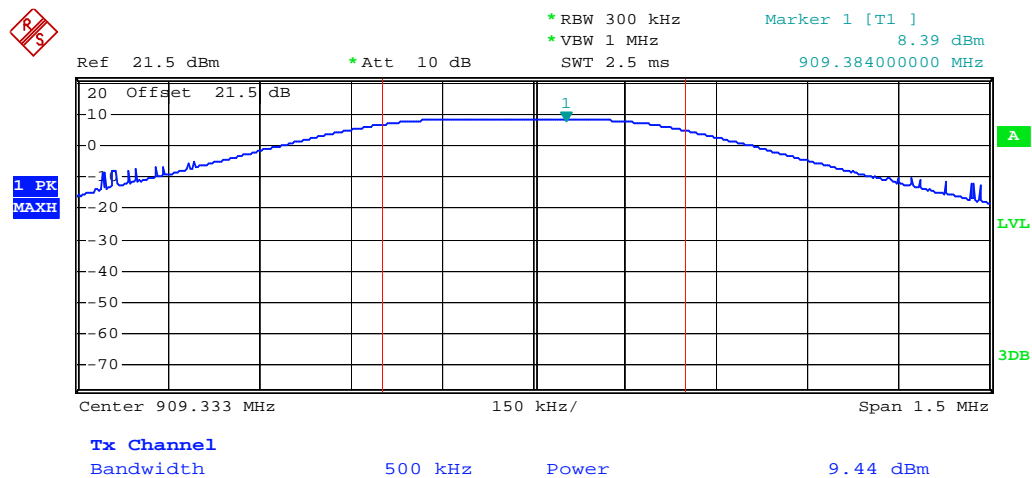
PASS.

The final test data is shown as following pages.

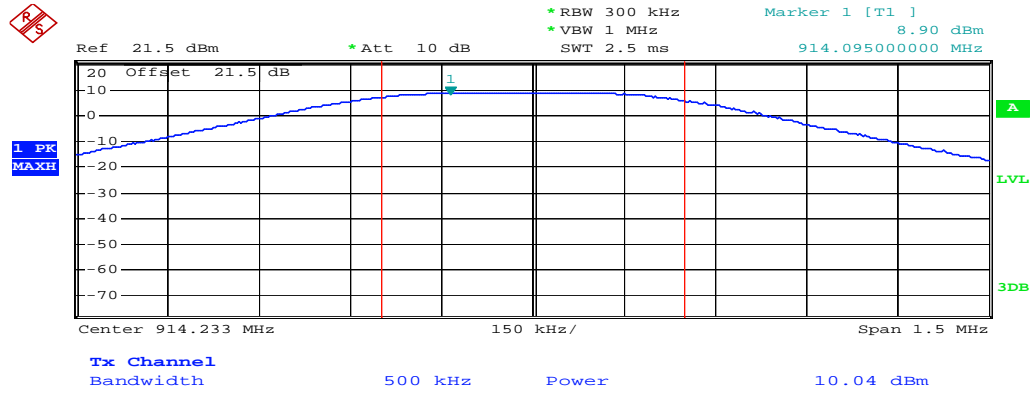
Maximum output power

CH	Freq. (MHz)	Test Voltage (Vdc)	Maximum transmit power		Limit (dBm)	Margin (dB)
			(dBm)	(watts)		
0	909.333	DC 3.7V	9.44	0.00879	24	-14.56
12	914.233	DC 3.7V	10.04	0.01009	24	-13.96
24	918.769	DC 3.7V	10.22	0.01052	24	-13.78

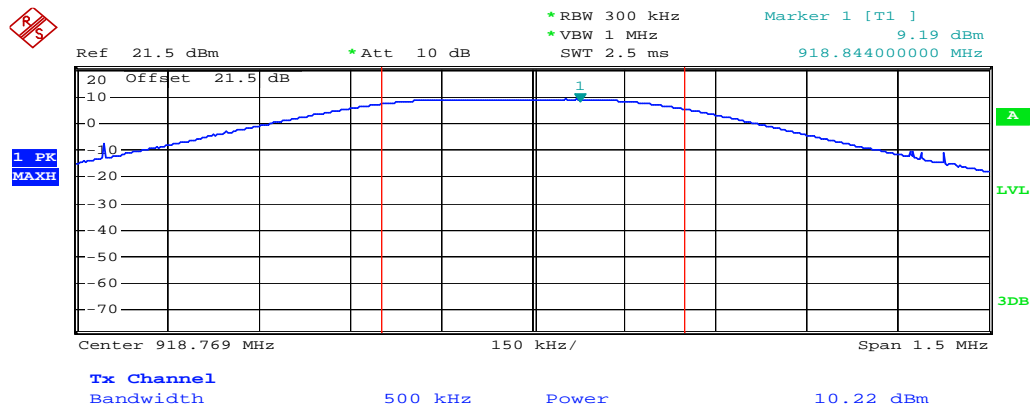
CH0 909.333MHz



CH12 914.233MHz



CH24 918.769MHz



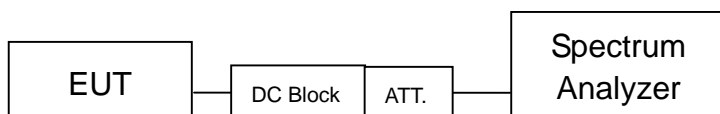
8 RF Conducted spurious emission

8.1 Limit

According to FCC Part 15.247(d) requirement :

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

8.2 Configuration of Measurement



8.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

RF antenna conducted spurious emissions was measured from the EUT antenna port using a 50ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 100 kHz.

The measurements were performed from 30MHz to 10GHz.

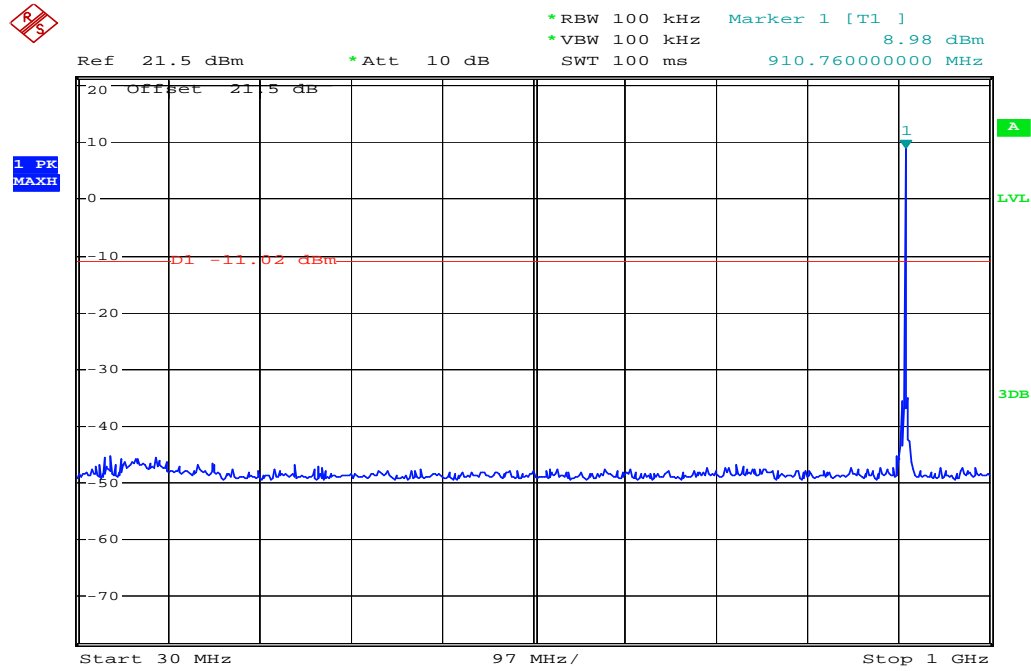
8.4 Test Result

PASS.

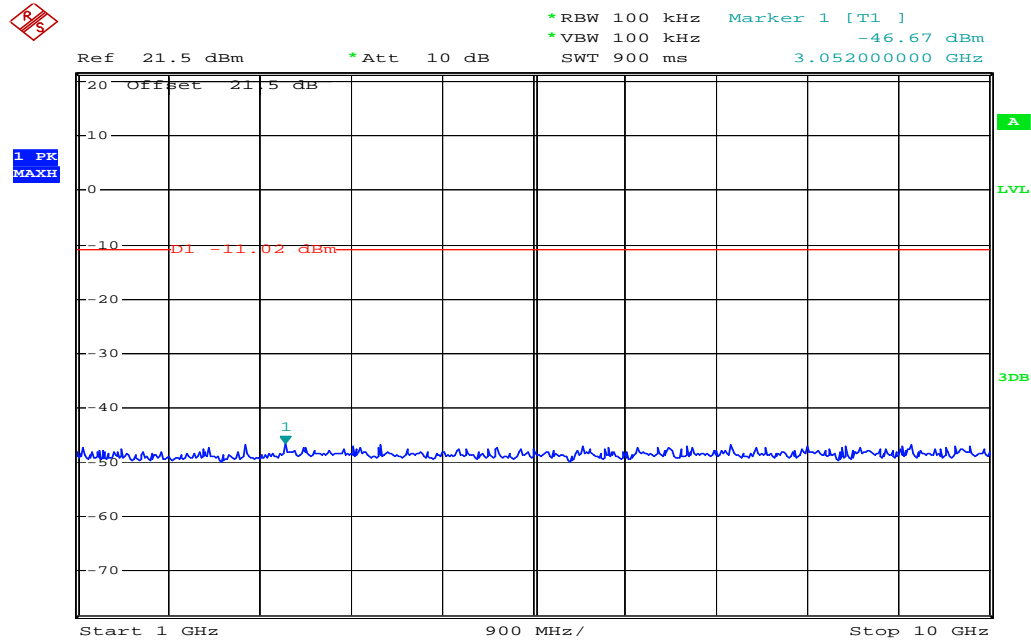
The final test data is shown as following pages.

Conducted spurious emission

CH0 909.333MHz (30MHz ~ 1GHz)

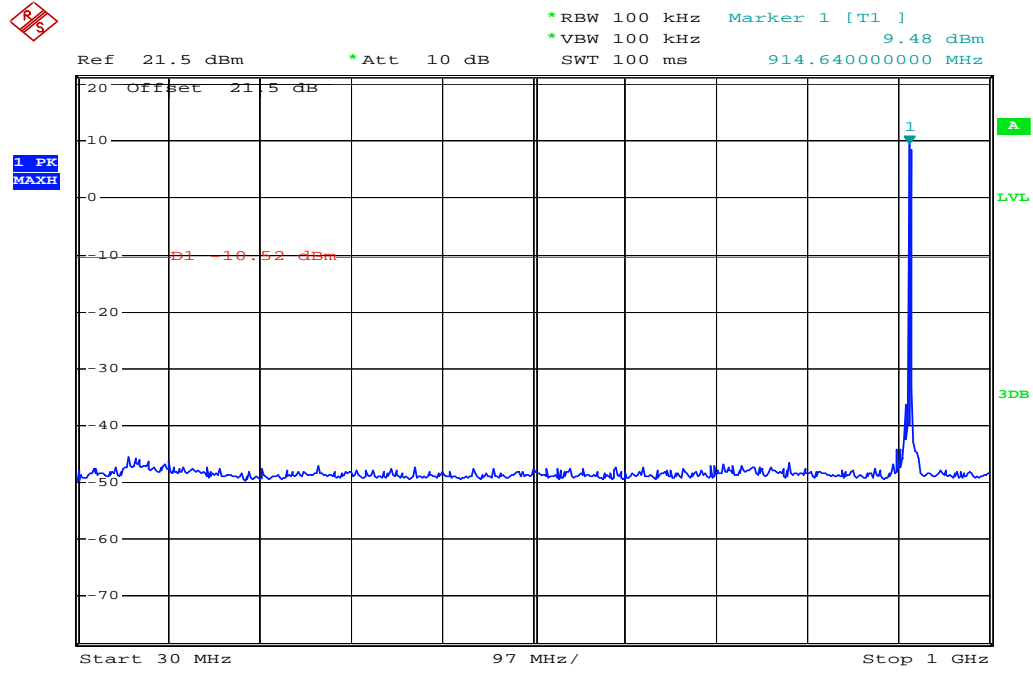


CH0 909.333MHz (1~10GHz)

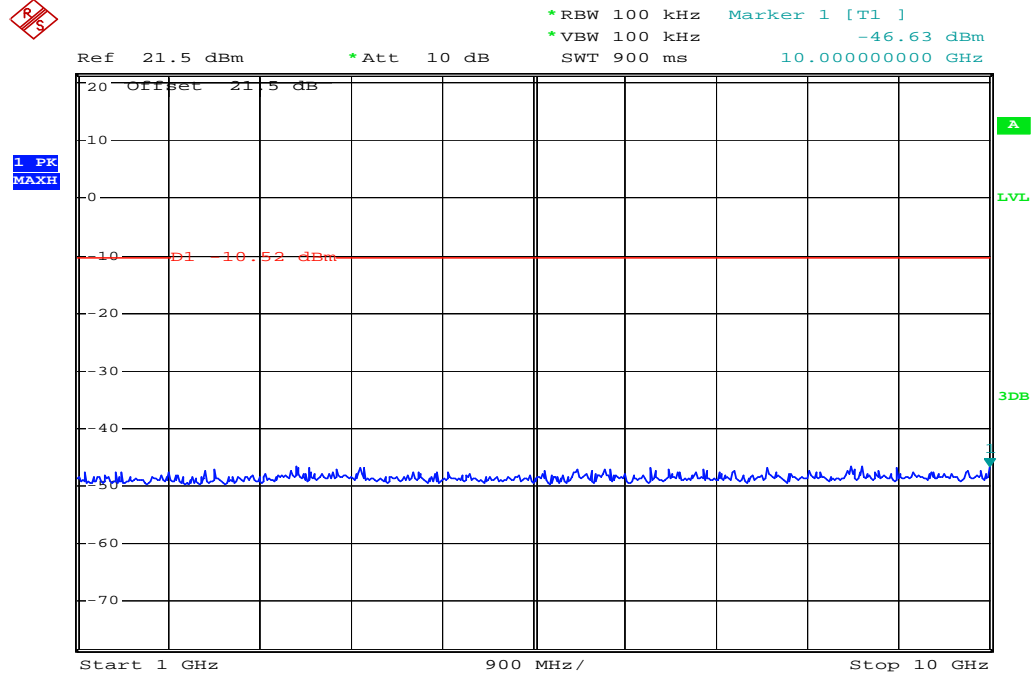


Page 27 of 49

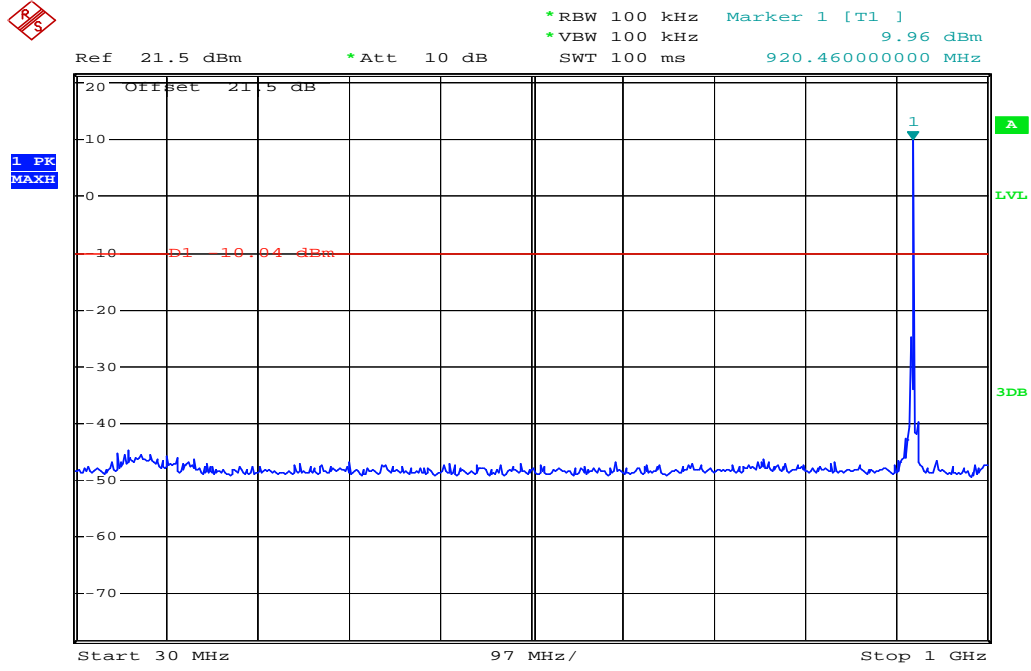
CH12 914.233MHz (30MHz ~ 1GHz)



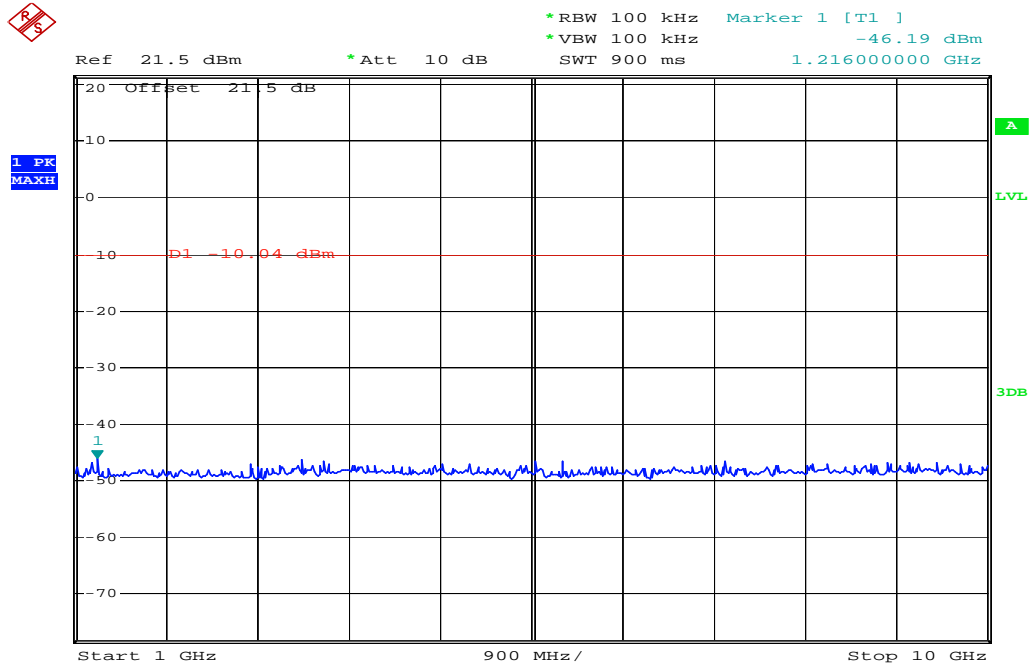
CH12 914.233MHz (1~10GHz)



CH24 918.769MHz (30MHz ~ 1GHz)



CH24 918.769MHz (1~10GHz)



9 RF Radiated spurious emission test

9.1 Limit

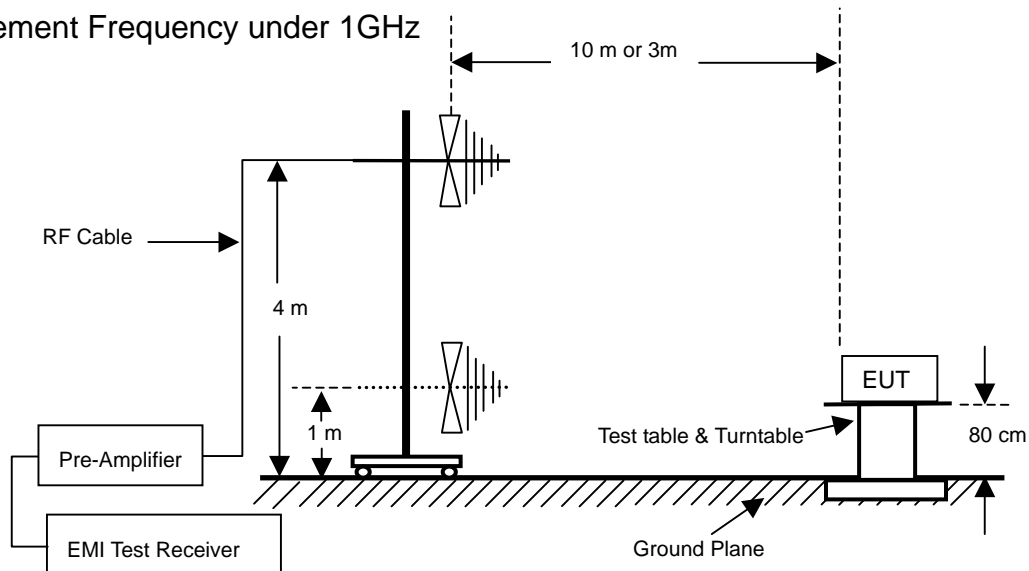
For intentional radiator, the radiated emission shall comply with FCC Part 15.209(a).

For intentional radiators, according to FCC Part 15.247 (a), operation under this provision is limited to frequency hopping and direct sequence spread spectrum, and the out band emission shall be comply with FCC Part 15.247 (c)

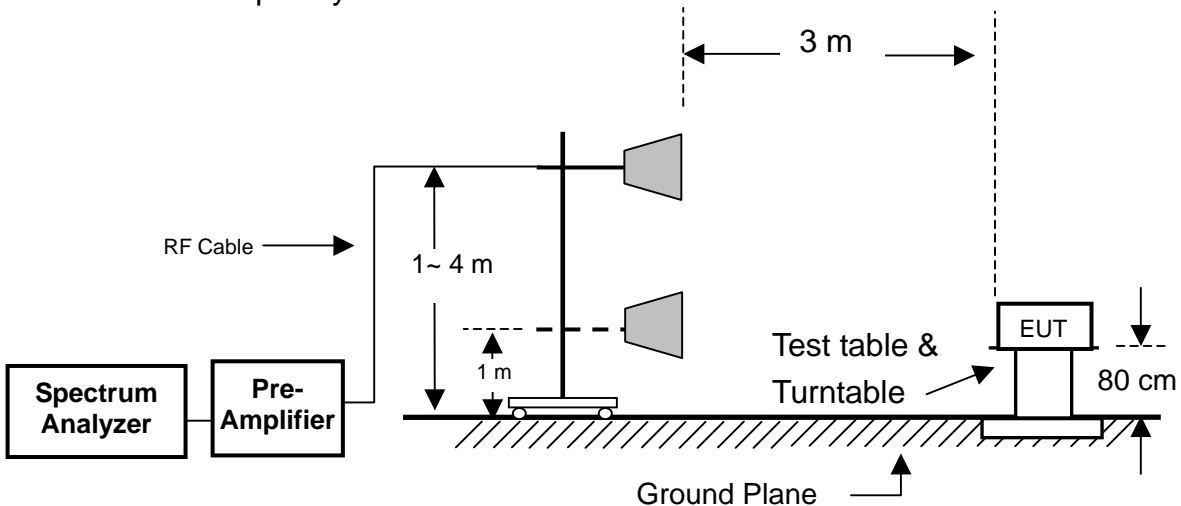
Frequency (MHz)	Field strength dB(μ V/m)	Measurement distance (meters)
1.705~30.0	29.5	30
30 ~ 88	40	3
88~216	43.5	3
216~960	46	3
Above 960	54	3

9.2 Configuration of Measurement

Measurement Frequency under 1GHz



Measurement Frequency above 1GHz



9.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

Radiated emission measurements were performed from 30MHz to 10GHz. Spectrum Analyzer set as below: For frequency range from 30MHz to 1GHz: RBW=100kHz or greater. For frequencies above 1GHz: set RBW=VBW=1MHz for peak detector and RBW=1MHz, VBW=10Hz for average detector.

The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and whole system. During the test, all cables were arranged to present worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meter and down to 1 meter.

9.4 Test Result

PASS.

The final test data is shown as following pages.

Radiated spurious emission

Test Environment

Ambient temperature : 26.3°C

Relative humidity : 46%

Radiated Emission below 1GHz

After verifying low, middle and high channel (909.333MHz, 914.233MHz and 918.769MHz)

Worst case was found at High channel (X axis).								
Frequency	Antenna	Reading	Preamp	Correction Factor	Corrected Level	Limits	Margin	Det
(MHz)	Polarization	(dBuV)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Mode
116.580	H	42.77	29.87	13.91	26.81	43.52	-16.71	QP
167.830	H	38.28	29.97	17.66	25.97	43.52	-17.55	QP
223.880	H	39.72	30.09	20.17	29.80	46.02	-16.22	QP
297.200	H	35.08	29.83	24.06	29.31	46.02	-16.71	QP
382.310	H	38.65	29.46	20.26	29.45	46.02	-16.57	QP
424.700	H	36.51	29.10	21.12	28.53	46.02	-17.49	QP
65.890	V	46.35	30.44	8.03	23.94	40.00	-16.06	QP
137.290	V	39.58	29.97	16.84	26.45	43.52	-17.07	QP
196.300	V	37.57	29.86	19.88	27.59	43.52	-15.93	QP
266.280	V	37.30	30.07	21.92	29.15	46.02	-16.87	QP
348.750	V	38.68	29.42	18.56	27.82	46.02	-18.20	QP
411.710	V	37.20	29.37	20.76	28.59	46.02	-17.43	QP

Remark : Corrected Level = Reading + Correction Factor – Preamp

Correction Factor = Antenna Factor + Cable Loss

The present spurious only show those points are above noise level and the frequency range test from 30MHz to 1GHz.

Radiated spurious emission

Radiated Emission above 1GHz

CH0 (909.333MHz)								
Frequency	Antenna	Reading	Preamp	Correction Factor	Corrected Level	Limits	Margin	Det
(MHz)	Polarization	(dBuV)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Mode
1818.666	H	45.42	27.83	29.60	47.19	54	-6.81	PK
2727.999	H	33.94	27.76	32.57	38.75	54	-15.25	PK
3637.332	H	35.76	27.71	34.45	42.50	54	-11.50	PK
4546.665	H	41.18	27.33	36.98	50.83	54	-3.17	PK
5455.998	H	34.40	27.61	39.19	45.98	54	-8.02	PK
*6365.331	H	33.63	27.07	41.69	48.25	54	-5.75	PK
1818.666	V	51.56	27.83	29.60	53.33	74	-20.67	PK
1818.666	V	45.68	27.83	29.60	47.45	54	-6.55	AV
2727.999	V	34.75	27.76	32.57	39.56	54	-14.44	PK
3637.332	V	35.71	27.71	34.45	42.45	54	-11.55	PK
4546.665	V	40.24	27.33	36.98	49.89	54	-4.11	PK
5455.998	V	35.12	27.61	39.19	46.70	54	-7.30	PK
*6365.331	V	34.70	27.07	41.69	49.32	54	-4.68	PK

Remark : Corrected Level = Reading + Correction Factor – Preamp

Correction Factor = Antenna Factor + Cable Loss

* Mark indicated background noise level.

CH12 (914.233MHz)								
Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Preamp (dB)	Correction Factor (dB/m)	Corrected Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Det. Mode
1828.466	H	46.24	27.84	29.62	48.02	54	-5.98	PK
2742.699	H	33.78	27.75	32.62	38.65	54	-15.35	PK
3656.932	H	35.20	27.70	34.54	42.04	54	-11.96	PK
4571.165	H	41.27	27.34	37.05	50.98	54	-3.02	PK
5485.398	H	33.64	27.61	39.19	45.22	54	-8.78	PK
*6399.631	H	33.39	27.04	41.81	48.16	54	-5.84	PK
1828.466	V	50.52	27.84	29.62	52.30	74	-21.70	PK
1828.466	V	44.87	27.84	29.62	46.65	54	-7.35	AV
2742.699	V	33.77	27.75	32.62	38.64	54	-15.36	PK
3656.932	V	35.34	27.70	34.54	42.18	54	-11.82	PK
4571.165	V	39.73	27.34	37.05	49.44	54	-4.56	PK
5485.398	V	34.80	27.61	39.19	46.38	54	-7.62	PK
*6399.631	V	33.59	27.04	41.81	48.36	54	-5.64	PK

Remark : Corrected Level = Reading + Correction Factor – Preamp

Correction Factor = Antenna Factor + Cable Loss

* Mark indicated background noise level.

CH24 (918.769MHz)								
Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Preamp (dB)	Correction Factor (dB/m)	Corrected Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Det. Mode
1837.538	H	45.23	27.85	29.65	47.03	54	-6.97	PK
2756.307	H	33.98	27.75	32.67	38.90	54	-15.10	PK
3675.076	H	34.83	27.70	34.62	41.75	54	-12.25	PK
4593.845	H	41.20	27.35	37.11	50.96	54	-3.04	PK
5512.614	H	34.00	27.61	39.31	45.70	54	-8.30	PK
*6431.383	H	33.55	27.01	41.93	48.47	54	-5.53	PK
1837.538	V	50.91	27.85	29.65	52.71	74	-21.29	PK
1837.538	V	45.23	27.85	29.65	47.03	54	-6.97	AV
2756.307	V	34.12	27.75	32.67	39.04	54	-14.96	PK
3675.076	V	35.17	27.70	34.62	42.09	54	-11.91	PK
4593.845	V	39.89	27.35	37.11	49.65	54	-4.35	PK
5512.614	V	34.49	27.61	39.31	46.19	54	-7.81	PK
*6431.383	V	33.32	27.01	41.93	48.24	54	-5.76	PK

Remark : Corrected Level = Reading + Correction Factor – Preamp

Correction Factor = Antenna Factor + Cable Loss

* Mark indicated background noise level.

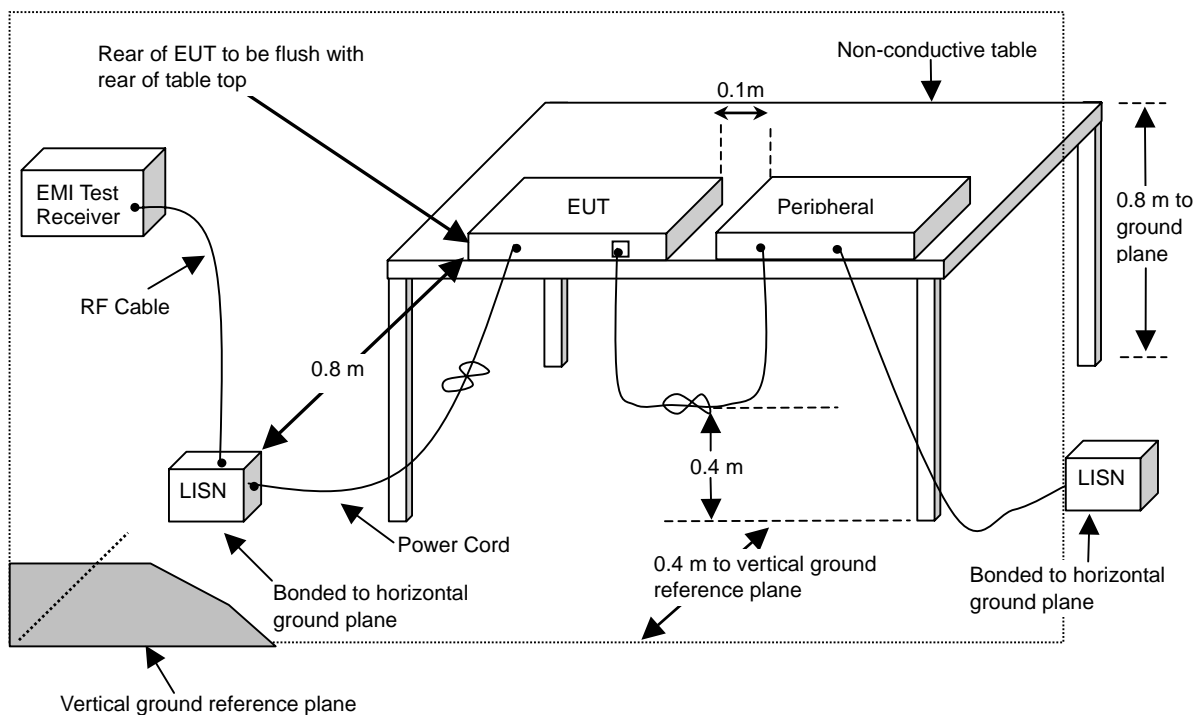
10 AC Power Line Conducted Emission test

10.1 Limits

Frequency (MHz)	Quasi-Peak (dB μ V)	Average (dB μ V)
0.15 to 0.5	66 to 56	56 to 46
> 0.5 to 5	56	46
> 5 to 30	60	50

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 30 MHz.

10.2 Configuration of Measurement



10.3 Test Procedures

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

- 1) The EUT was placed 80cm height above ground on a non-conductive table and vertical conducting plane located 40cm to the rear of the EUT.
- 2) The EUT was connected to the main power through Line Impedance Stabilization Networks (LISN). This setup provided a 50ohm/50mH coupling impedance for the measuring equipment. The auxiliary equipment will place in secondary LISN.
- 3) Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4/2003 on conducted measurement.

10.4 Test Result

PASS.

The final test data is shown as following pages.

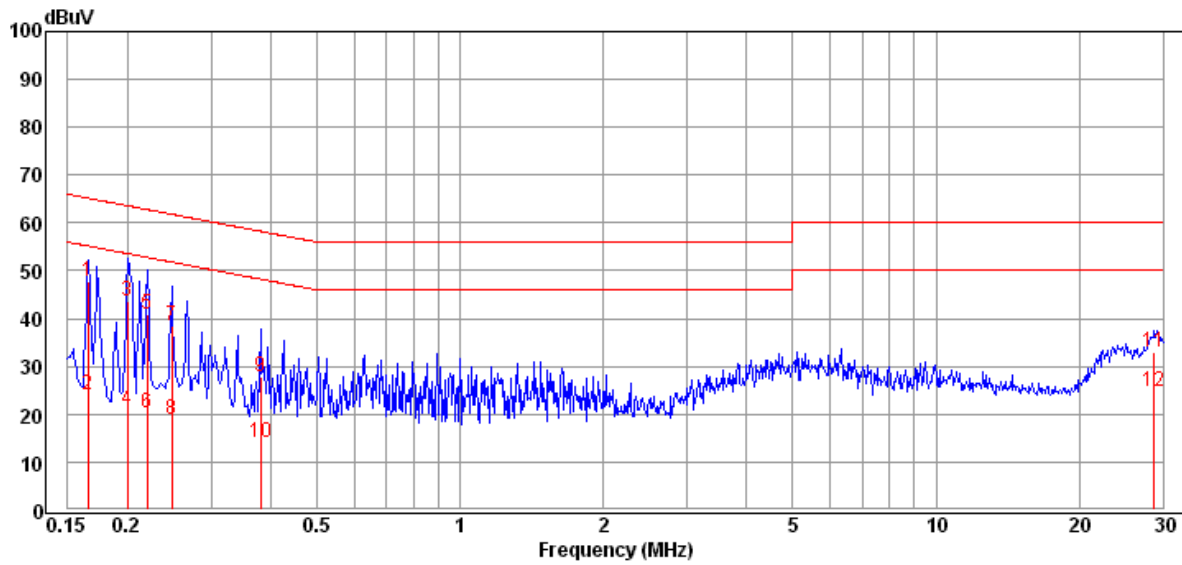
Power Line Conducted Test Data

CLIENT: Nutek Corporation
 EUT: Deluxe 2-way Alarm & Remote start
 MODEL: 157
 RATING: 120Vac/60Hz
 COMMENT: Charger Mode

OPERATOR: Elli
 TEST SITE: Conducted 2
 POLARIZATION: Line
 TEMP/HUM: 26.3°C / 54%

Data:6 D:\E3_28\2013\Nutek.EM8

2013-06-25



Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.166	47.40	0.45	47.85	65.16	-17.31	QP
2	0.166	23.54	0.45	23.99	55.16	-31.17	Average
3	0.201	43.08	0.43	43.51	63.58	-20.07	QP
4	0.201	20.66	0.43	21.09	53.58	-32.49	Average
5	0.221	40.46	0.43	40.89	62.79	-21.90	QP
6	0.221	19.91	0.43	20.34	52.79	-32.45	Average
7	0.248	38.11	0.43	38.54	61.82	-23.28	QP
8	0.248	18.34	0.43	18.77	51.82	-33.05	Average
9	0.381	27.45	0.42	27.87	58.25	-30.38	QP
10	0.381	13.66	0.42	14.08	48.25	-34.17	Average
11	28.755	31.28	1.54	32.82	60.00	-27.18	QP
12	28.755	23.17	1.54	24.71	50.00	-25.29	Average

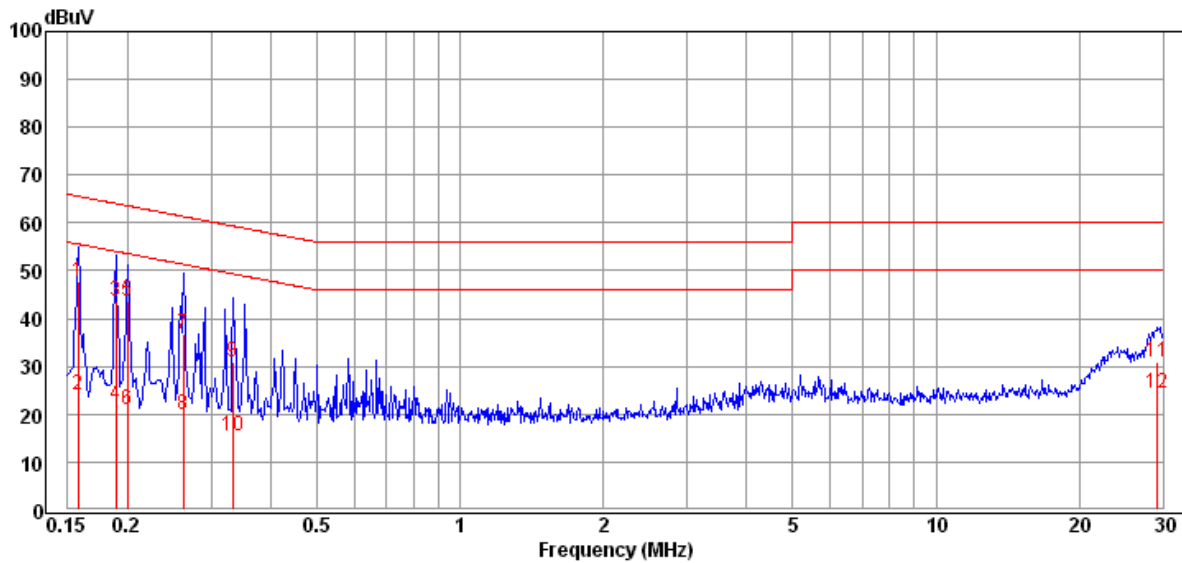
Power Line Conducted Test Data

CLIENT: Nutek Corporation
 EUT: Deluxe 2-way Alarm & Remote start
 MODEL: 157
 RATING: 120Vac/60Hz
 COMMENT: Charger Mode

OPERATOR: Elli
 TEST SITE: Conducted 2
 POLARIZATION: Neutral
 TEMP/HUM: 26.3°C / 54%

Data:9 D:\E3_28\2013\Nutek.EM8

2013-06-25



Item Mark	Freq. MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Remark
1	0.158	47.47	0.29	47.76	65.56	-17.80	QP
2	0.158	23.91	0.29	24.20	55.56	-31.36	Average
3	0.189	43.20	0.27	43.47	64.06	-20.59	QP
4	0.189	21.55	0.27	21.82	54.06	-32.24	Average
5	0.201	43.30	0.27	43.57	63.58	-20.01	QP
6	0.201	20.64	0.27	20.91	53.58	-32.67	Average
7	0.263	36.56	0.27	36.83	61.34	-24.51	QP
8	0.263	19.64	0.27	19.91	51.34	-31.43	Average
9	0.334	30.59	0.27	30.86	59.35	-28.49	QP
10	0.334	15.35	0.27	15.62	49.35	-33.73	Average
11	29.216	29.75	1.30	31.05	60.00	-28.95	QP
12	29.216	22.93	1.30	24.23	50.00	-25.77	Average