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FCC TEST REPORT

REPORT NO.: RF990121L17
MODEL NO.: FreeStyl 1
RECEIVED: Jan. 21, 2010
TESTED: Jan. 25 ~ Feb. 05, 2010
ISSUED: Feb. 09, 2010

APPLICANT: Senao Networks, Inc.

ADDRESS: 3F, No. 529, Chung Cheng Rd., Hsintien,
Taipei, Taiwan, R.O.C.

ISSUED BY: Bureau Veritas Consumer Products Services
(H.K.) Ltd., Taoyuan Branch

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou
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TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen,
Kwei Shan Hsiang, Taoyuan Hsien 333,
Taiwan, R.O.C.

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1. CERTIFICATION

PRODUCT: Single Line Long Range Cordless Telephone

BRAND: EnGenius

MODEL: FreeStyl 1

APPLICANT: Senao Networks, Inc.

TESTED: Jan. 25 ~ Feb. 05, 2010

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment (Model: FreeStyl 1) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Andrea Hsia , **DATE** : Feb. 09, 2010
Andrea Hsia / Specialist

TECHNICAL
ACCEPTANCE : Long Chen , **DATE** : Feb. 09, 2010
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE** : Feb. 09, 2010
Gary Chang / Assistant Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -14.55dB at 0.552MHz.
15.247(a)(1)(i)	Number of Hopping Frequency Used Spec.: At least 50 channels	PASS	Meet the requirement of limit.
15.247(a)(1)(i)	Dwell Time on Each Channel Spec.: Max. 0.4 second within 20 second	PASS	Meet the requirement of limit.
15.247(a)(1)(i)	1. Hopping Channel Separation Spec.: Min. 25 kHz or 20 dB bandwidth, whichever is greater 2. Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System	PASS	Meet the requirement of limit.
15.247(b)(2)	Maximum Peak Output Power Spec.: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Transmitter Radiated Emissions Spec.: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -2.1dB at 717.62MHz
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connectors are Reversed-thread TNC (Base station) & Sheet metal (Portable handset) not a standard connector.

2.1 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 Emission	9KHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.34 dB
	200MHz ~1000MHz	3.35 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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



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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Single Line Long Range Cordless Telephone
MODEL NO.	FreeStyl 1
FCC ID	U2M-FS1
POWER SUPPLY	12Vdc (from AC Adapter) 3.7Vdc (from battery) 5.5Vdc (from charger)
MODULATION TYPE	MSK / TDD (Frequency hopping)
OPERATING FREQUENCY	902.269668 ~ 927.654755MHz
NUMBER OF CHANNEL	252
CHANNEL SPACING	101.136kHz
OUTPUT POWER	831.8mW
ANTENNA TYPE	Dipole antenna with 2dBi gain (Base Station) Dipole antenna with 2.5dBi gain (long Ant. Portable Handset) Dipole antenna with 1.5dBi gain (short Ant. Portable Handset)
ANTENNA CONNECTOR	Reversed-thread TNC (Base Station) Sheet metal (Portable Handset)
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICE	Adapter, charger, Battery

NOTE:

1. The EUT uses following adapters, battery & Charger.

ADAPTER (for Base Station used)	
BRAND	DVE
MODEL	DSA-12G-12 FUS 120120
INPUT POWER	100-240Vac, 50/60Hz, 0.3A
OUTPUT POWER	12Vdc, 1A
POEWR LINE	1.8m non-shielded cable without core

BATTERY (for Portable Handset used)	
BRAND	EnGenius
INPUT POWER	1100mAh
OUTPUT POWER	3.7Vdc

ADAPTER (for Portable Handset Charger used)	
MODEL	WRG10F-055A
INPUT POWER	100-240Vac, 50-60Hz, 0.5A
OUTPUT POWER	5.5Vdc, 1.5A
POEWR LINE	1.8m non-shielded cable with one core

2. A set of the EUT include Base station & Portable handset
3. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

252 channels are provided to this EUT:

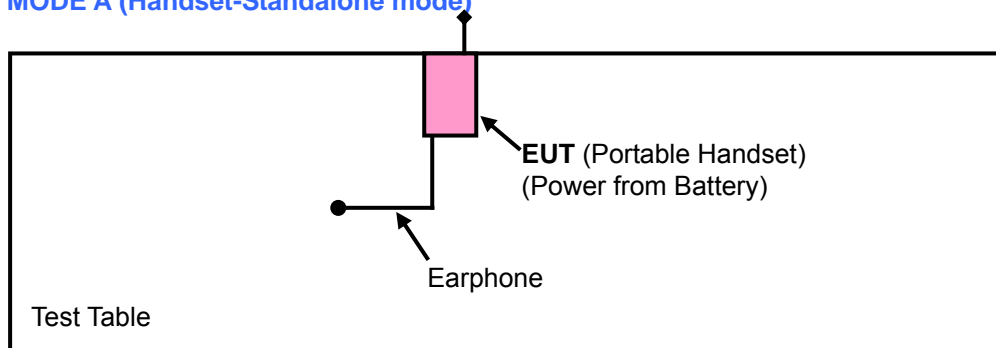
CH.	FREQ. (MHz)	CH.	FREQ. (MHz)	CH.	FREQ. (MHz)	CH.	FREQ. (MHz)	CH.	FREQ. (MHz)
1	902.269668	31	905.303742	61	908.337817	91	911.371891	121	914.405965
2	902.370804	32	905.404878	62	908.438952	92	911.473026	122	914.507100
3	902.471940	33	905.506014	63	908.540088	93	911.574162	123	914.608236
4	902.573076	34	905.607150	64	908.540088	94	911.675298	124	914.709372
5	902.674212	35	905.708286	65	908.742360	95	911.776434	125	914.810508
6	902.775347	36	905.809421	66	908.843496	96	911.877570	126	914.911644
7	902.876483	37	905.910557	67	908.944631	97	911.978705	127	915.012779
8	902.977619	38	906.011693	68	909.045767	98	912.079841	128	915.113915
9	903.078755	39	906.112829	69	909.146903	99	912.180977	129	915.113915
10	903.179891	40	906.213965	70	909.248039	100	912.282113	130	915.316187
11	903.281026	41	906.315100	71	909.349175	101	912.383249	131	915.417323
12	903.382162	42	906.416236	72	909.450310	102	912.484384	132	915.518458
13	903.483298	43	906.517372	73	909.551446	103	912.585520	133	915.619594
14	903.584434	44	906.618508	74	909.652582	104	912.686656	134	915.720730
15	903.685570	45	906.719644	75	909.753718	105	912.787792	135	915.821866
16	903.786705	46	906.820779	76	909.854854	106	912.888928	136	915.923002
17	903.887841	47	906.921915	77	909.955989	107	912.990063	137	916.024138
18	903.988977	48	907.023051	78	910.057125	108	913.091199	138	916.125273
19	904.090113	49	907.124187	79	910.158261	109	913.192335	139	916.226409
20	904.191249	50	907.225323	80	910.259397	110	913.293471	140	916.327545
21	904.292384	51	907.326458	81	910.360533	111	913.394607	141	916.428681
22	904.393520	52	907.427594	82	910.461668	112	913.495742	142	916.529817
23	904.494656	53	907.528730	83	910.562804	113	913.596878	143	916.630952
24	904.595792	54	907.629866	84	910.663940	114	913.698014	144	916.732088
25	904.696928	55	907.731002	85	910.765076	115	913.799150	145	916.833224
26	904.798063	56	907.832138	86	910.866212	116	913.900286	146	916.934360
27	904.899199	57	907.933273	87	910.967347	117	914.001421	147	917.035496
28	905.000335	58	908.034409	88	911.068483	118	914.102557	148	917.136631
29	905.101471	59	908.135545	89	911.169619	119	914.203693	149	917.237767
30	905.202607	60	908.236681	90	911.270755	120	914.304829	150	917.338903

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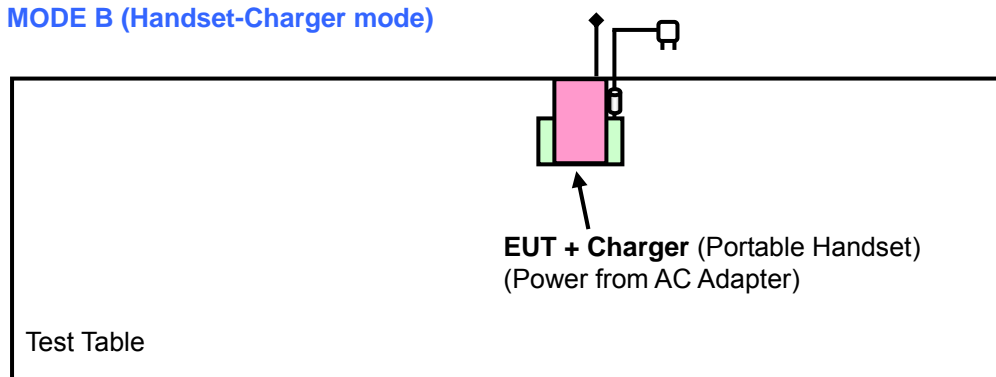
Ch.	Freq. (MHz)	Ch.	Freq. (MHz)	Ch.	Freq. (MHz)	Ch.	Freq. (MHz)	Ch.	Freq. (MHz)
151	917.440039	172	919.563891	193	921.687742	214	923.811594	235	925.935446
152	917.541175	173	919.665026	194	921.687742	215	923.912730	236	926.036582
153	917.642310	174	919.766162	195	921.890014	216	924.013866	237	926.137718
154	917.743446	175	919.867298	196	921.991150	217	924.115002	238	926.238854
155	917.844582	176	919.968434	197	922.092286	218	924.216138	239	926.339989
156	917.945718	177	920.069570	198	922.193421	219	924.317273	240	926.441125
157	918.046854	178	920.170705	199	922.294557	220	924.418409	241	926.542261
158	918.147989	179	920.271841	200	922.395693	221	924.519545	242	926.643397
159	918.249125	180	920.372977	201	922.496829	222	924.620681	243	926.744533
160	918.350261	181	920.474113	202	922.597965	223	924.721817	244	926.845668
161	918.451397	182	920.575249	203	922.699100	224	924.822952	245	926.946804
162	918.552533	183	920.676384	204	922.800236	225	924.924088	246	927.047940
163	918.653668	184	920.777520	205	922.901372	226	925.025224	247	927.149076
164	918.754804	185	920.878656	206	923.002508	227	925.126360	248	927.250212
165	918.855940	186	920.979792	207	923.103644	228	925.227496	249	927.351347
166	918.957076	187	921.080928	208	923.204779	229	925.328631	250	927.452483
167	919.058212	188	921.182063	209	923.305915	230	925.429767	251	927.553619
168	919.159347	189	921.283199	210	923.407051	231	925.530903	252	927.654755
169	919.260483	190	921.384335	211	923.508187	232	925.632039		
170	919.361619	191	921.485471	212	923.609323	233	925.733175		
171	919.462755	192	921.586607	213	923.710458	234	925.834310		

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

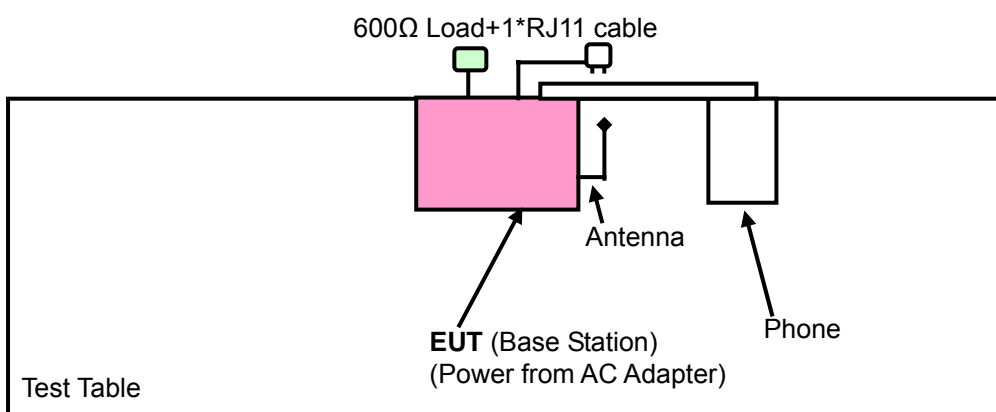
TEST MODE A (Handset-Standalone mode)



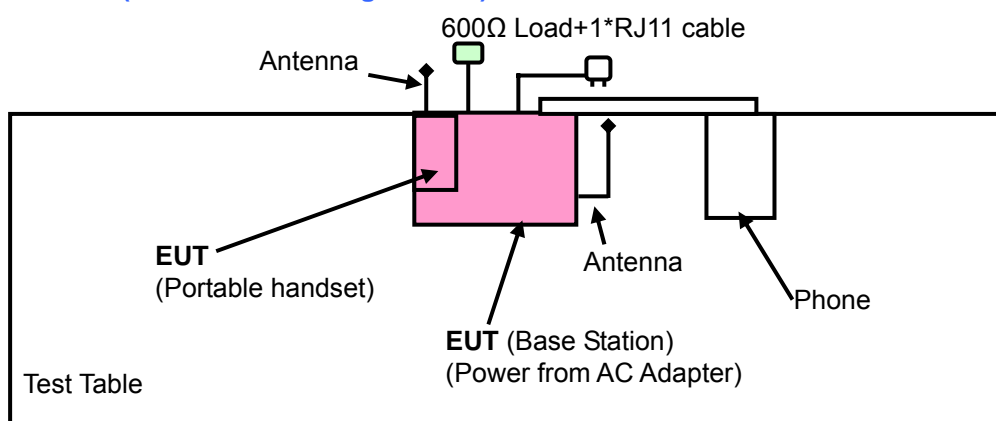
TEST MODE B (Handset-Charger mode)



TEST MODE C (Base Station- Standalone mode)



TEST MODE D (Base Station-Charger mode)



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE \geq 1G	RE<1G	PLC	APCM	
A	√	√	-	√	Handset TX mode with 2.5dBi dipole antenna
B	-	√	√	-	Handset Charger mode with 2.5dBi dipole antenna
C	√	√	√	√	Base Station TX mode
D	-	√	√	-	Base Station Charger mode

Where **RE \geq 1G**: Radiated Emission above 1GHz

PLC: Power Line Conducted Emission

NOTE: "-" means no effect

RE<1G: Radiated Emission below 1GHz

APCM: Antenna Port Conducted Measurement

RADIATED EMISSION TEST (ABOVE 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	AXIS
A	1 to 252	1, 126, 252	MSK	Y
C	1 to 252	1, 126, 252	MSK	-

RADIATED EMISSION TEST (BELOW 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	AXIS
A	1 to 252	1, 126, 252	MSK	Y
B	1 to 252	1	MSK	Z
C	1 to 252	1, 126, 252	MSK	-
D	1 to 252	1	MSK	-

POWER LINE CONDUCTED EMISSION TEST:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
B	1 to 252	1	MSK
C	1 to 252	1, 126, 252	MSK
D	1 to 252	1	MSK

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
A	1 to 252	1, 126, 252	MSK
C	1 to 252	1, 126, 252	MSK

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	23deg. C, 65%RH, 1011 hPa	3.7Vdc / 120Vac, 60Hz	Brad Wu
RE<1G	23deg. C, 65%RH, 1011 hPa	3.7Vdc / 120Vac, 60Hz	Brad Wu
PLC	24deg. C, 64%RH, 1012 hPa	120Vac, 60Hz	Brad Wu
APCM	25deg. C, 65%RH, 1018 hPa	3.7Vdc / 120Vac, 60Hz	Dean Wang

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

All test items have been performed and recorded as per the above standards.

3.4 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.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	TELEPHONE	WONDER	WD-303	5C17DA09345	NA
2	TELEPHONE	WONDER	WD-303	5C17DA03116	NA
3	EARPHONE	NA	NA	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ11 cable
2	10m RJ11 cable
3	1.2m non-shielded cable without core

NOTE: 1. All power cords of the above support units are non-shielded (1.8 m).
2. Item 3 was supplied from client.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	$2400/F(\text{kHz})$	300
0.490 ~ 1.705	$24000/F(\text{kHz})$	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
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 of modulation.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 25, 2009	May 24, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Jul. 07, 2009	Jul. 06, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 30, 2009	Apr. 29, 2010
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Aug. 10, 2009	Aug. 09, 2010
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Dec. 25, 2009	Dec. 24, 2010
Preamplifier Agilent	8449B	3008A01910	Sep. 11, 2009	Sep. 10, 2010
Preamplifier Agilent	8447D	2944A10638	Dec. 21, 2009	Dec. 20, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 13, 2009	May 12, 2010
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 17, 2009	Aug. 16, 2010
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 9.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC 7450F-4.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

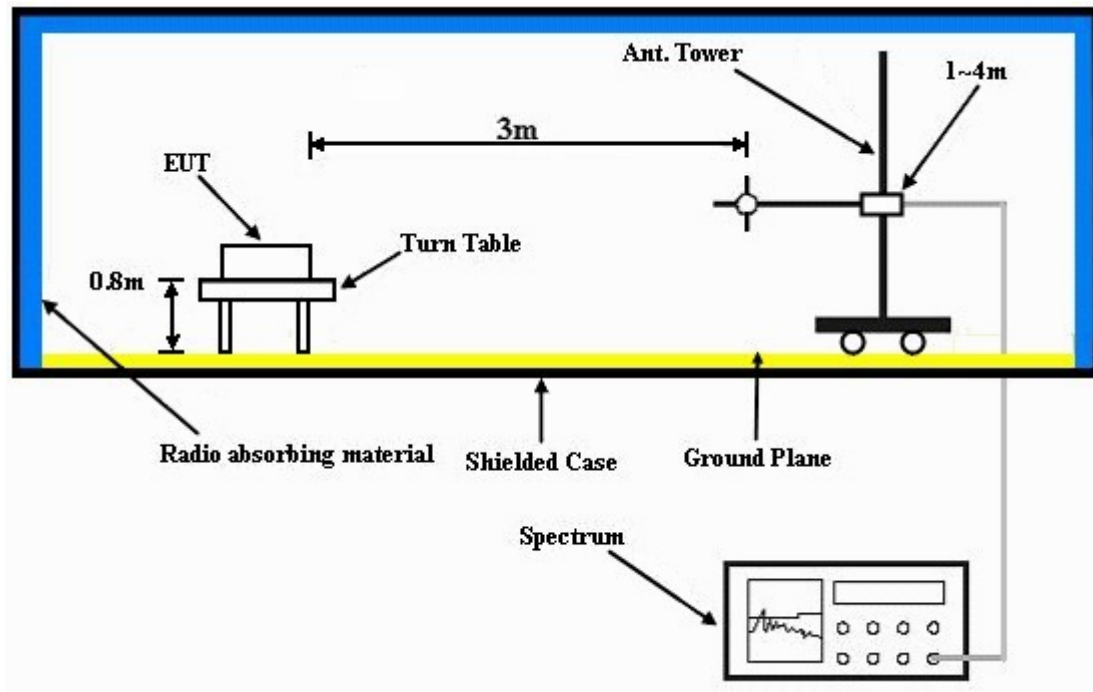
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT OPERATING CONDITIONS

- Placed the EUT on a testing table.
- Set the EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the system in full functions.

4.1.7 TEST RESULTS

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1011 hPa	TEST MODE	A
TESTED BY	Mark Liao		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#410.98	44.2 PK	113.4	-69.2	2.00 H	76	25.9	18.3
2	#410.98	43.4 AV	82.5	-39.1	2.00 H	76	25.1	18.3
3	#492.64	50.3 PK	113.4	-63.1	1.50 H	88	30.0	20.3
4	#492.64	49.6 AV	82.5	-32.9	1.50 H	88	29.3	20.3
5	#655.96	52.2 PK	113.4	-61.2	1.00 H	223	28.2	24.0
6	#655.96	51.4 AV	82.5	-31.1	1.00 H	223	27.4	24.0
7	#900.00	69.5 PK	113.4	-43.9	1.39 H	48	41.6	27.9
8	#900.00	56.2 AV	82.5	-26.3	1.39 H	48	28.3	27.9
9	#902.00	104.7 PK	113.4	-8.7	1.39 H	48	76.8	27.9
10	#902.00	73.8 AV	82.5	-8.7	1.39 H	48	45.9	27.9
11	*902.27	133.4 PK			1.39 H	48	105.5	27.9
12	*902.27	102.5 AV			1.39 H	48	74.6	27.9

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”:The radiated frequency is out the restricted band.
7. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:
20 log (Duty cycle) = 20 log (2.84 ms / 100 ms) = -30.9 dB
Please see page 28 for plotted duty.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1011 hPa	TEST MODE	A
TESTED BY	Mark Liao		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#422.65	34.7 PK	104.1	-69.4	2.00 V	190	16.1	18.6
2	#422.65	33.8 AV	73.2	-39.4	2.00 V	190	15.2	18.6
3	#492.64	43.3 PK	104.1	-60.8	2.00 V	142	23.0	20.3
4	#492.64	42.5 AV	73.2	-30.7	2.00 V	142	22.2	20.3
5	#669.57	40.0 PK	104.1	-64.1	2.00 V	289	15.7	24.3
6	#669.57	39.2 AV	73.2	-34.0	2.00 V	289	14.9	24.3
7	#900.00	60.2 PK	104.1	-43.9	1.51 V	331	32.3	27.9
8	#900.00	46.9 AV	73.2	-26.3	1.51 V	331	19.0	27.9
9	#902.00	95.4 PK	104.1	-8.7	1.51 V	331	67.5	27.9
10	#902.00	64.5 AV	73.2	-8.7	1.51 V	331	36.6	27.9
11	*902.27	124.1 PK			1.51 V	331	96.2	27.9
12	*902.27	93.2 AV			1.51 V	331	65.3	27.9

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”:The radiated frequency is out the restricted band.
7. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:
20 log (Duty cycle) = 20 log (2.84 ms / 100 ms) = -30.9 dB
Please see page 28 for plotted duty.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 126	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#422.65	45.3 PK	113.1	-67.8	2.00 H	241	26.7	18.6
2	#422.65	44.4 AV	82.2	-37.8	2.00 H	241	25.8	18.6
3	#492.64	51.1 PK	113.1	-62.0	1.50 H	81	30.8	20.3
4	#492.64	50.3 AV	82.2	-31.9	1.50 H	81	30.0	20.3
5	#669.57	48.8 PK	113.1	-64.3	1.00 H	247	24.5	24.3
6	#669.57	48.1 AV	82.2	-34.1	1.00 H	247	23.8	24.3
7	*914.91	133.1 PK			1.41 H	52	105.0	28.1
8	*914.91	102.2 AV			1.41 H	52	74.1	28.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#422.65	34.7 PK	102.9	-68.2	2.00 V	190	16.1	18.6
2	#422.65	33.8 AV	72.0	-38.2	2.00 V	190	15.2	18.6
3	#492.64	43.3 PK	102.9	-59.6	2.00 V	142	23.0	20.3
4	#492.64	42.5 AV	72.0	-29.5	2.00 V	142	22.2	20.3
5	#669.57	40.0 PK	102.9	-62.9	2.00 V	289	15.7	24.3
6	#669.57	39.2 AV	72.0	-32.8	2.00 V	289	14.9	24.3
7	*914.91	122.9 PK			1.48 V	328	94.8	28.1
8	*914.91	92.0 AV			1.48 V	328	63.9	28.1

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.
7. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:
20 log (Duty cycle) = 20 log (2.84 ms / 100 ms) = -30.9 dB
Please see page 28 for plotted duty.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 252	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#436.26	45.5 PK	112.4	-66.9	2.00 H	85	26.5	19.0
2	#436.26	44.6 AV	81.5	-36.9	2.00 H	85	25.6	19.0
3	#492.64	49.1 PK	112.4	-63.3	1.50 H	247	28.8	20.3
4	#492.64	48.4 AV	81.5	-33.1	1.50 H	247	28.1	20.3
5	#681.24	53.9 PK	112.4	-58.5	2.00 H	88	29.3	24.6
6	#681.24	53.1 AV	81.5	-28.4	2.00 H	88	28.5	24.6
7	*927.65	132.4 PK			1.43 H	50	104.1	28.3
8	*927.65	101.5 AV			1.43 H	50	73.2	28.3
9	#928.00	105.9 PK	112.4	-6.5	1.43 H	50	77.6	28.3
10	#928.00	75.0 AV	81.5	-6.5	1.43 H	50	46.7	28.3
11	#930.00	81.6 PK	112.4	-30.8	1.43 H	50	53.3	28.3
12	#930.00	68.4 AV	81.5	-13.1	1.43 H	50	40.1	28.3

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.
7. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

$$20 \log (\text{Duty cycle}) = 20 \log (2.84 \text{ ms} / 100 \text{ ms}) = -30.9 \text{ dB}$$

Please see page 28 for plotted duty.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 252	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#436.26	35.5 PK	102.0	-66.5	2.00 V	355	16.5	19.0
2	#436.26	34.8 AV	71.1	-36.3	2.00 V	355	15.8	19.0
3	#492.64	41.8 PK	102.0	-60.2	2.00 V	175	21.5	20.3
4	#492.64	40.9 AV	71.1	-30.2	2.00 V	175	20.6	20.3
5	#681.24	46.2 PK	102.0	-55.8	2.00 V	109	21.6	24.6
6	#681.24	45.4 AV	71.1	-25.7	2.00 V	109	20.8	24.6
7	*927.65	122.0 PK			1.39 V	338	93.7	28.3
8	*927.65	91.1 AV			1.39 V	338	62.8	28.3
9	#928.00	95.5 PK	102.0	-6.5	1.39 V	338	67.2	28.3
10	#928.00	64.6 AV	71.1	-6.5	1.39 V	338	36.3	28.3
11	#930.00	71.2 PK	102.0	-30.8	1.39 V	338	42.9	28.3
12	#930.00	58.0 AV	71.1	-13.1	1.39 V	338	29.7	28.3

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.
7. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

$$20 \log (\text{Duty cycle}) = 20 \log (2.84 \text{ ms} / 100 \text{ ms}) = -30.9 \text{ dB}$$

Please see page 28 for plotted duty.



A D T

ABOVE 1GHz DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#1804.54	50.9 PK	112.4	-61.5	1.44 H	305	22.10	28.80
2	#1804.54	20.0 AV	81.5	-61.5	1.44 H	305	-8.80	28.80
3	2706.81	53.9 PK	74.0	-20.1	1.15 H	10	22.40	31.50
4	2706.81	23.0 AV	54.0	-31.0	1.15 H	10	-8.50	31.50
5	5413.62	49.2 PK	74.0	-24.8	1.06 H	356	11.90	37.30
6	5413.62	18.3 AV	54.0	-35.7	1.06 H	356	-19.00	37.30
7	#6315.89	49.7 PK	112.4	-62.7	1.02 H	55	10.10	39.60
8	#6315.89	18.8 AV	81.5	-62.7	1.02 H	55	-20.80	39.60
9	#7218.16	51.7 PK	112.4	-60.7	1.23 H	51	9.30	42.40
10	#7218.16	20.8 AV	81.5	-60.7	1.23 H	51	-21.60	42.40
11	8120.43	54.3 PK	74.0	-19.7	1.21 H	166	10.30	44.00
12	8120.43	23.4 AV	54.0	-30.6	1.21 H	166	-20.60	44.00
13	9022.70	57.1 PK	74.0	-16.9	1.34 H	296	11.90	45.20
14	9022.70	26.2 AV	54.0	-27.8	1.34 H	296	-19.00	45.20

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

$$20 \log (\text{Duty cycle}) = 20 \log (2.84 \text{ ms} / 100 \text{ ms}) = -30.9 \text{ dB}$$
Please see page 28 for plotted duty.
 6. "#":The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#1804.54	46.4 PK	102.0	-55.6	1.36 V	334	17.60	28.80
2	#1804.54	15.5 AV	71.1	-55.6	1.36 V	334	-13.30	28.80
3	2706.81	54.5 PK	74.0	-19.5	1.27 V	41	23.00	31.50
4	2706.81	23.6 AV	54.0	-30.4	1.27 V	41	-7.90	31.50
5	5413.62	50.5 PK	74.0	-23.5	1.36 V	232	13.20	37.30
6	5413.62	19.6 AV	54.0	-34.4	1.36 V	232	-17.70	37.30
7	#6315.89	50.6 PK	102.0	-51.4	1.00 V	2	11.00	39.60
8	#6315.89	19.7 AV	71.1	-51.4	1.00 V	2	-19.90	39.60
9	#7218.16	52.7 PK	102.0	-49.3	1.00 V	3	10.30	42.40
10	#7218.16	21.8 AV	71.1	-49.3	1.00 V	3	-20.60	42.40
11	8120.43	54.7 PK	74.0	-19.3	1.01 V	22	10.70	44.00
12	8120.43	23.8 AV	54.0	-30.2	1.01 V	22	-20.20	44.00
13	9022.70	56.6 PK	74.0	-17.4	1.35 V	283	11.40	45.20
14	9022.70	25.7 AV	54.0	-28.3	1.35 V	283	-19.50	45.20

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

$$20 \log (\text{Duty cycle}) = 20 \log (2.84 \text{ ms} / 100 \text{ ms}) = -30.9 \text{ dB}$$

Please see page 28 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 126	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#1829.82	51.7 PK	112.4	-60.7	1.49 H	166	22.90	28.80
2	#1829.82	20.8 AV	81.5	-60.7	1.49 H	166	-8.00	28.80
3	2744.73	52.3 PK	74.0	-21.7	1.19 H	264	20.70	31.60
4	2744.73	21.4 AV	54.0	-32.6	1.19 H	264	-10.20	31.60
5	#5489.46	49.1 PK	112.4	-63.3	1.44 H	173	11.70	37.40
6	#5489.46	18.2 AV	81.5	-63.3	1.44 H	173	-19.20	37.40
7	#6404.37	51.3 PK	112.4	-61.1	1.00 H	347	11.40	39.90
8	#6404.37	20.4 AV	81.5	-61.1	1.00 H	347	-19.50	39.90
9	7319.28	53.4 PK	74.0	-20.6	1.42 H	226	10.80	42.60
10	7319.28	22.5 AV	54.0	-31.5	1.42 H	226	-20.10	42.60
11	8234.19	56.2 PK	74.0	-17.8	1.28 H	146	12.20	44.00
12	8234.19	25.3 AV	54.0	-28.7	1.28 H	146	-18.70	44.00
13	9149.10	57.3 PK	74.0	-16.7	1.47 H	219	11.90	45.40
14	9149.10	26.4 AV	54.0	-27.6	1.47 H	219	-19.00	45.40

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:
20 log (Duty cycle) = 20 log (2.84 ms / 100 ms) = -30.9 dB
Please see page 28 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 126	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#1829.82	48.6 PK	102.0	-53.4	1.42 V	339	19.80	28.80
2	#1829.82	17.7 AV	71.1	-53.4	1.42 V	339	-11.10	28.80
3	2744.73	54.2 PK	74.0	-19.8	1.31 V	247	22.60	31.60
4	2744.73	23.3 AV	54.0	-30.7	1.31 V	247	-8.30	31.60
5	#5489.46	50.3 PK	102.0	-51.7	1.29 V	153	12.90	37.40
6	#5489.46	19.4 AV	71.1	-51.7	1.29 V	153	-18.00	37.40
7	#6404.37	50.8 PK	102.0	-51.2	1.00 V	162	10.90	39.90
8	#6404.37	19.9 AV	71.1	-51.2	1.00 V	162	-20.00	39.90
9	7319.28	53.2 PK	74.0	-20.8	1.00 V	166	10.60	42.60
10	7319.28	22.3 AV	54.0	-31.7	1.00 V	166	-20.30	42.60
11	8234.19	54.9 PK	74.0	-19.1	1.27 V	73	10.90	44.00
12	8234.19	24.0 AV	54.0	-30.0	1.27 V	73	-20.00	44.00
13	9149.10	57.1 PK	74.0	-16.9	1.44 V	263	11.70	45.40
14	9149.10	26.2 AV	54.0	-27.8	1.44 V	263	-19.20	45.40

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:
 $20 \log (\text{Duty cycle}) = 20 \log (2.84 \text{ ms} / 100 \text{ ms}) = -30.9 \text{ dB}$
Please see page 28 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 252	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#1855.30	52.4 PK	112.4	-60.0	1.41 H	128	23.60	28.80
2	#1855.30	21.5 AV	81.5	-60.0	1.41 H	128	-7.30	28.80
3	2782.95	52.5 PK	74.0	-21.5	1.09 H	200	20.80	31.70
4	2782.95	21.6 AV	54.0	-32.4	1.09 H	200	-10.10	31.70
5	#5565.90	48.8 PK	112.4	-63.6	1.24 H	188	11.30	37.50
6	#5565.90	17.9 AV	81.5	-63.6	1.24 H	188	-19.60	37.50
7	#6493.55	51.0 PK	112.4	-61.4	1.00 H	236	10.80	40.20
8	#6493.55	20.1 AV	81.5	-61.4	1.00 H	236	-20.10	40.20
9	7421.20	53.7 PK	74.0	-20.3	1.27 H	205	10.90	42.80
10	7421.20	22.8 AV	54.0	-31.2	1.27 H	205	-20.00	42.80
11	8348.85	56.6 PK	74.0	-17.4	1.34 H	134	12.50	44.10
12	8348.85	25.7 AV	54.0	-28.3	1.34 H	134	-18.40	44.10
13	#9276.50	57.1 PK	112.4	-55.3	1.46 H	264	11.30	45.80
14	#9276.50	26.2 AV	81.5	-55.3	1.46 H	264	-19.60	45.80

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:
20 log (Duty cycle) = 20 log (2.84 ms / 100 ms) = -30.9 dB
Please see page 28 for plotted duty.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 252	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

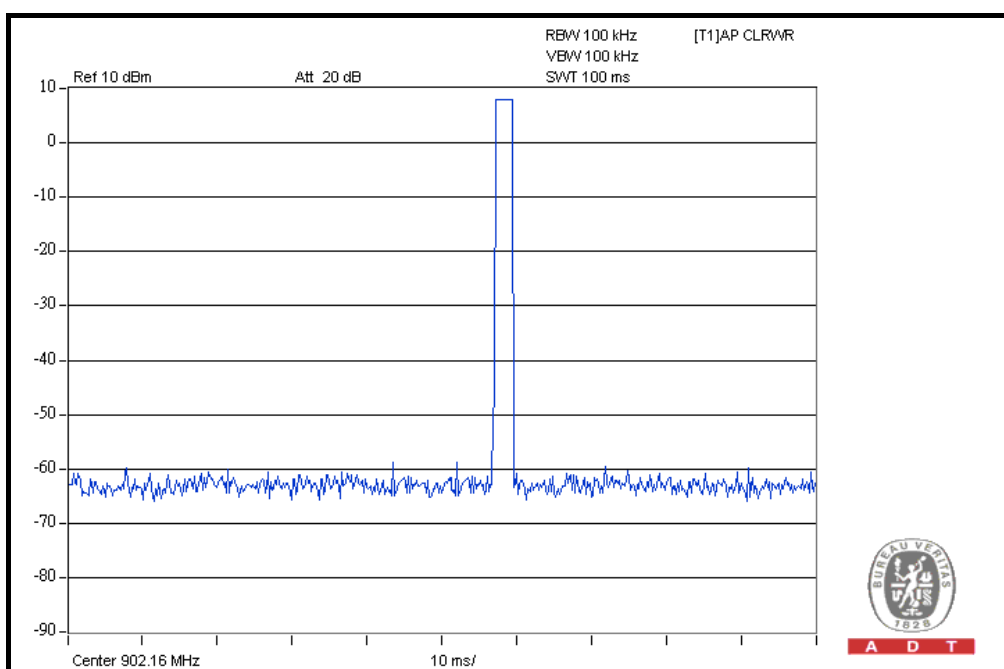
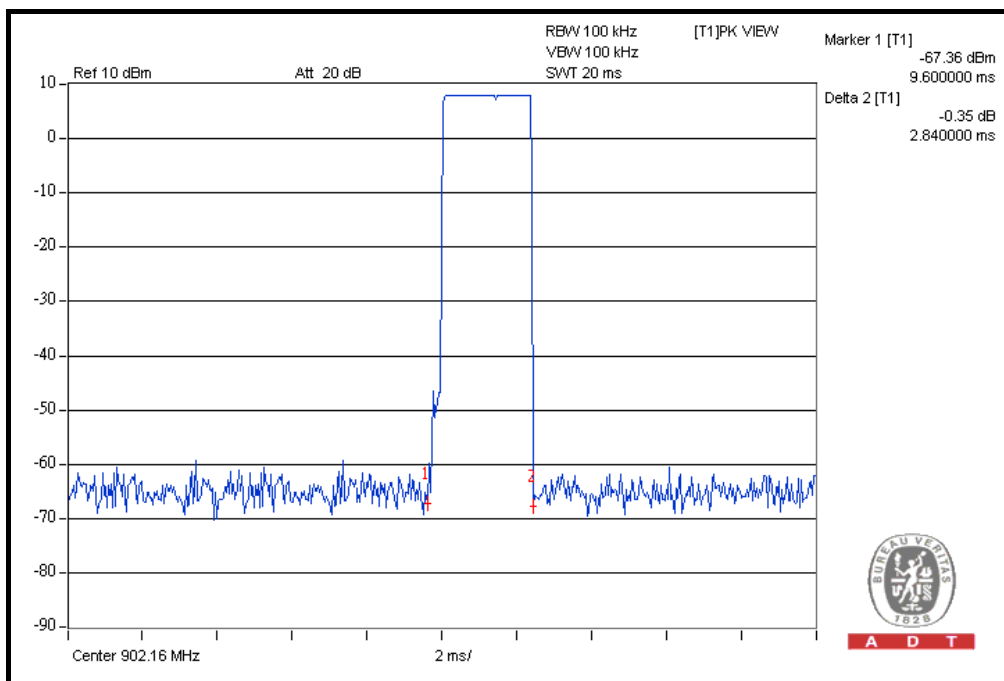
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#1855.30	49.8 PK	102.0	-52.2	1.58 V	349	21.00	28.80
2	#1855.30	18.9 AV	71.1	-52.2	1.58 V	349	-9.90	28.80
3	2782.95	54.8 PK	74.0	-19.2	1.21 V	225	23.10	31.70
4	2782.95	23.9 AV	54.0	-30.1	1.21 V	225	-7.80	31.70
5	#5565.90	50.0 PK	102.0	-52.0	1.37 V	158	12.50	37.50
6	#5565.90	19.1 AV	71.1	-52.0	1.37 V	158	-18.40	37.50
7	#6493.55	51.0 PK	102.0	-51.0	1.52 V	243	10.80	40.20
8	#6493.55	20.1 AV	71.1	-51.0	1.52 V	243	-20.10	40.20
9	7421.20	54.4 PK	74.0	-19.6	1.36 V	117	11.60	42.80
10	7421.20	23.5 AV	54.0	-30.5	1.36 V	117	-19.30	42.80
11	8348.85	55.1 PK	74.0	-18.9	1.42 V	229	11.00	44.10
12	8348.85	24.2 AV	54.0	-29.8	1.42 V	229	-19.90	44.10
13	#9276.50	57.0 PK	102.0	-45.0	1.33 V	63	11.20	45.80
14	#9276.50	26.1 AV	71.1	-45.0	1.33 V	63	-19.70	45.80

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

$$20 \log (\text{Duty cycle}) = 20 \log (2.84 \text{ ms} / 100 \text{ ms}) = -30.9 \text{ dB}$$
Please see page 28 for plotted duty.



A D T



$$20 \log (\text{Duty cycle}) = 20 \log (2.84 \text{ ms} / 100 \text{ ms}) = -30.9\text{dB}$$



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	C
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#737.62	50.7 PK	102.0	-51.3	1.50 H	211	25.3	25.4
2	#737.62	49.2 AV	71.2	-22.0	1.50 H	211	23.8	25.4
3	#900.00	59.4 PK	102.0	-42.6	1.49 H	13	31.5	27.9
4	#900.00	45.5 AV	71.2	-25.7	1.49 H	13	17.6	27.9
5	#902.00	93.8 PK	102.0	-8.2	1.49 H	13	65.9	27.9
6	#902.00	63.0 AV	71.2	-8.2	1.49 H	13	35.1	27.9
7	*902.27	122.0 PK			1.49 H	13	94.1	27.9
8	*902.27	91.2 AV			1.49 H	13	63.3	27.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#737.62	44.7 PK	112.1	-67.4	1.50 V	211	19.3	25.4
2	#737.62	43.9 AV	81.3	-37.4	1.50 V	211	18.5	25.4
3	#900.00	69.5 PK	112.1	-42.6	1.00 V	189	41.6	27.9
4	#900.00	55.6 AV	81.3	-25.7	1.00 V	189	27.7	27.9
5	#902.00	103.9 PK	112.1	-8.2	1.00 V	189	76.0	27.9
6	#902.00	73.1 AV	81.3	-8.2	1.00 V	189	45.2	27.9
7	*902.27	132.1 PK			1.00 V	189	104.2	27.9
8	*902.27	101.3 AV			1.00 V	189	73.4	27.9

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. “#”:The radiated frequency is out the restricted band.
7. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

$$20 \log (\text{Duty cycle}) = 20 \log (2.88 \text{ ms} / 100 \text{ ms}) = -30.8\text{dB}$$

Please see page 35 for plotted duty.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 126	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	C
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#737.62	50.7 PK	102.3	-51.6	1.02 H	195	25.3	25.4
2	#737.62	50.1 AV	71.5	-21.4	1.02 H	195	24.7	25.4
3	*914.91	122.3 PK			1.46 H	15	94.2	28.1
4	*914.91	91.5 AV			1.46 H	15	63.4	28.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#737.62	43.9 PK	112.2	-68.3	1.00 V	175	18.5	25.4
2	#737.62	43.1 AV	81.4	-38.3	1.00 V	175	17.7	25.4
3	*914.91	132.2 PK			1.00 V	165	104.1	28.1
4	*914.91	101.4 AV			1.00 V	165	73.3	28.1

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.
7. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

$$20 \log (\text{Duty cycle}) = 20 \log (2.88 \text{ ms} / 100 \text{ ms}) = -30.8\text{dB}$$

Please see page 35 for plotted duty.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 252	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	C
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#737.62	52.0 PK	101.6	-49.6	1.00 H	181	26.6	25.4
2	#737.62	51.1 AV	70.8	-19.7	1.00 H	181	25.7	25.4
3	*927.65	121.6 PK			1.42 H	21	93.3	28.3
4	*927.65	90.8 AV			1.42 H	21	62.5	28.3
5	#928.00	95.5 PK	101.6	-6.1	1.42 H	21	67.2	28.3
6	#928.00	64.7 AV	70.8	-6.1	1.42 H	21	36.4	28.3
7	#930.00	71.4 PK	101.6	-30.2	1.42 H	21	43.1	28.3
8	#930.00	58.1 AV	70.8	-12.7	1.42 H	21	29.8	28.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#737.62	44.6 PK	111.9	-67.3	1.50 V	244	19.2	25.4
2	#737.62	43.8 AV	81.1	-37.3	1.50 V	244	18.4	25.4
3	*927.65	131.9 PK			1.00 V	165	103.6	28.3
4	*927.65	101.1 AV			1.00 V	165	72.8	28.3
5	#928.00	105.8 PK	111.9	-6.1	1.00 V	165	77.5	28.3
6	#928.00	75.0 AV	81.1	-6.1	1.00 V	165	46.7	28.3
7	#930.00	81.7 PK	111.9	-30.2	1.00 V	165	53.4	28.3
8	#930.00	68.4 AV	81.1	-12.7	1.00 V	165	40.1	28.3

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.
7. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

$$20 \log (\text{Duty cycle}) = 20 \log (2.88 \text{ ms} / 100 \text{ ms}) = -30.8\text{dB}$$

Please see page 35 for plotted duty.



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ABOVE 1GHz DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 68%RH 1020 hPa	TEST MODE	C
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1804.54	50.4 PK	74.0	-23.6	1.49 H	196	21.40	29.00
2	1804.54	19.6 AV	54.0	-34.4	1.49 H	196	-9.40	29.00
3	2706.81	47.9 PK	74.0	-26.1	1.00 H	13	16.20	31.70
4	2706.81	17.1 AV	54.0	-36.9	1.00 H	13	-14.60	31.70
5	3609.08	54.0 PK	74.0	-20.0	1.00 H	325	20.70	33.30
6	3609.08	23.2 AV	54.0	-30.8	1.00 H	325	-10.10	33.30
7	4511.35	49.7 PK	74.0	-24.3	1.42 H	243	13.90	35.80
8	4511.35	18.9 AV	54.0	-35.1	1.42 H	243	-16.90	35.80
9	5413.62	49.3 PK	74.0	-24.7	1.19 H	168	11.80	37.50
10	5413.62	18.5 AV	54.0	-35.5	1.19 H	168	-19.00	37.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1804.54	57.3 PK	74.0	-16.7	1.19 V	355	28.30	29.00
2	1804.54	26.5 AV	54.0	-27.5	1.19 V	355	-2.50	29.00
3	2706.81	52.1 PK	74.0	-21.9	1.91 V	300	20.40	31.70
4	2706.81	21.3 AV	54.0	-32.7	1.91 V	300	-10.40	31.70
5	3609.08	52.5 PK	74.0	-21.5	1.31 V	222	19.20	33.30
6	3609.08	21.7 AV	54.0	-32.3	1.31 V	222	-11.60	33.30
7	4511.35	51.3 PK	74.0	-22.7	1.20 V	57	15.50	35.80
8	4511.35	20.5 AV	54.0	-33.5	1.20 V	57	-15.30	35.80
9	5413.62	52.9 PK	74.0	-21.1	1.33 V	152	15.40	37.50
10	5413.62	22.1 AV	54.0	-31.9	1.33 V	152	-15.40	37.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:
 $20 \log (\text{Duty cycle}) = 20 \log (2.88 \text{ ms} / 100 \text{ ms}) = -30.8\text{dB}$
Please see page 35 for plotted duty.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 126	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 68%RH 1020 hPa	TEST MODE	C
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1829.82	52.3 PK	74.0	-21.7	1.33 H	176	23.30	29.00
2	1829.82	21.5 AV	54.0	-32.5	1.33 H	176	-7.50	29.00
3	2744.73	48.7 PK	74.0	-25.3	1.00 H	25	16.90	31.80
4	2744.73	17.9 AV	54.0	-36.1	1.00 H	25	-13.90	31.80
5	3659.64	55.2 PK	74.0	-18.8	1.00 H	276	21.70	33.50
6	3659.64	24.4 AV	54.0	-29.6	1.00 H	276	-9.10	33.50
7	4574.55	50.2 PK	74.0	-23.8	1.48 H	255	14.20	36.00
8	4574.55	19.4 AV	54.0	-34.6	1.48 H	255	-16.60	36.00
9	5489.46	48.7 PK	74.0	-25.3	1.42 H	279	11.10	37.60
10	5489.46	17.9 AV	54.0	-36.1	1.42 H	279	-19.70	37.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1829.82	59.3 PK	74.0	-14.7	1.24 V	294	30.30	29.00
2	1829.82	28.5 AV	54.0	-25.5	1.24 V	294	-0.50	29.00
3	2744.73	51.7 PK	74.0	-22.3	1.83 V	308	19.90	31.80
4	2744.73	20.9 AV	54.0	-33.1	1.83 V	308	-10.90	31.80
5	3659.64	53.7 PK	74.0	-20.3	1.42 V	273	20.20	33.50
6	3659.64	22.9 AV	54.0	-31.1	1.42 V	273	-10.60	33.50
7	4574.55	53.2 PK	74.0	-20.8	1.24 V	125	17.20	36.00
8	4574.55	22.4 AV	54.0	-31.6	1.24 V	125	-13.60	36.00
9	5489.46	53.2 PK	74.0	-20.8	1.42 V	177	15.60	37.60
10	5489.46	22.4 AV	54.0	-31.6	1.42 V	177	-15.20	37.60

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

$$20 \log (\text{Duty cycle}) = 20 \log (2.88 \text{ ms} / 100 \text{ ms}) = -30.8\text{dB}$$

Please see page 35 for plotted duty.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 252	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 68%RH 1020 hPa	TEST MODE	C
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1855.30	53.2 PK	74.0	-20.8	1.15 H	128	24.10	29.10
2	1855.30	22.4 AV	54.0	-31.6	1.15 H	128	-6.70	29.10
3	2782.95	49.4 PK	74.0	-24.6	1.05 H	128	17.50	31.90
4	2782.95	18.6 AV	54.0	-35.4	1.05 H	128	-13.30	31.90
5	3710.60	54.7 PK	74.0	-19.3	1.00 H	324	21.00	33.70
6	3710.60	23.9 AV	54.0	-30.1	1.00 H	324	-9.80	33.70
7	4638.25	51.4 PK	74.0	-22.6	1.38 H	193	15.30	36.10
8	4638.25	20.6 AV	54.0	-33.4	1.38 H	193	-15.50	36.10
9	5565.90	49.3 PK	74.0	-24.7	1.52 H	244	11.60	37.70
10	5565.90	18.5 AV	54.0	-35.5	1.52 H	244	-19.20	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1855.30	59.0 PK	74.0	-15.0	1.33 V	251	29.90	29.10
2	1855.30	28.2 AV	54.0	-25.8	1.33 V	251	-0.90	29.10
3	2782.95	52.4 PK	74.0	-21.6	1.59 V	244	20.50	31.90
4	2782.95	21.6 AV	54.0	-32.4	1.59 V	244	-10.30	31.90
5	3710.60	52.7 PK	74.0	-21.3	1.27 V	261	19.00	33.70
6	3710.60	21.9 AV	54.0	-32.1	1.27 V	261	-11.80	33.70
7	4638.25	52.2 PK	74.0	-21.8	1.41 V	256	16.10	36.10
8	4638.25	21.4 AV	54.0	-32.6	1.41 V	256	-14.70	36.10
9	5565.90	50.2 PK	74.0	-23.8	1.62 V	173	12.50	37.70
10	5565.90	19.4 AV	54.0	-34.6	1.62 V	173	-18.30	37.70

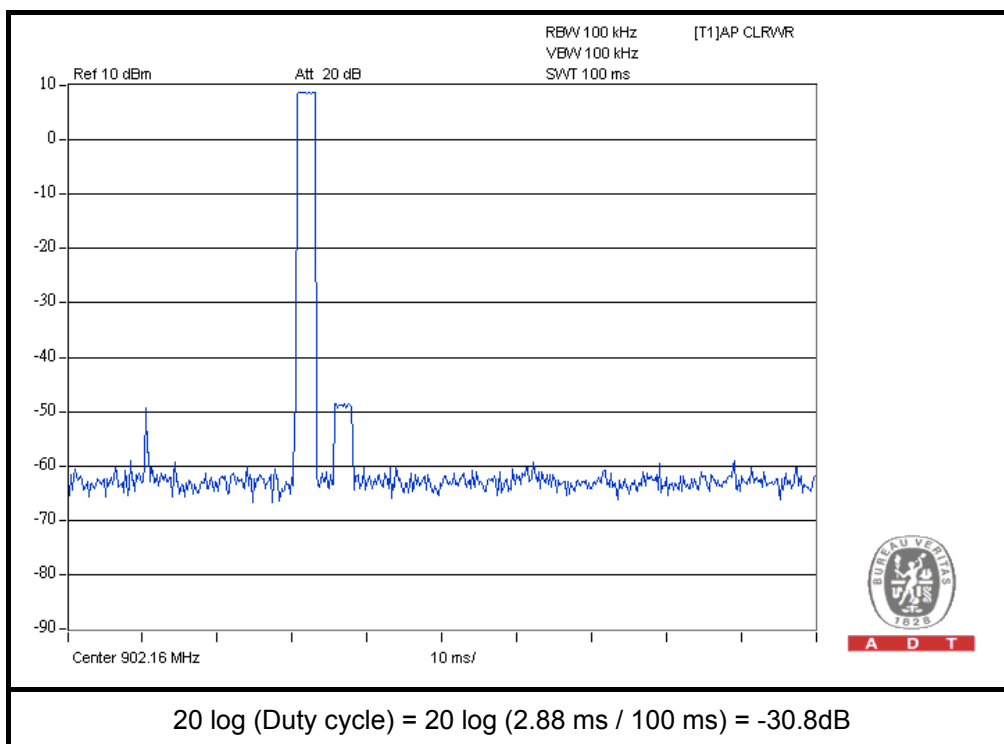
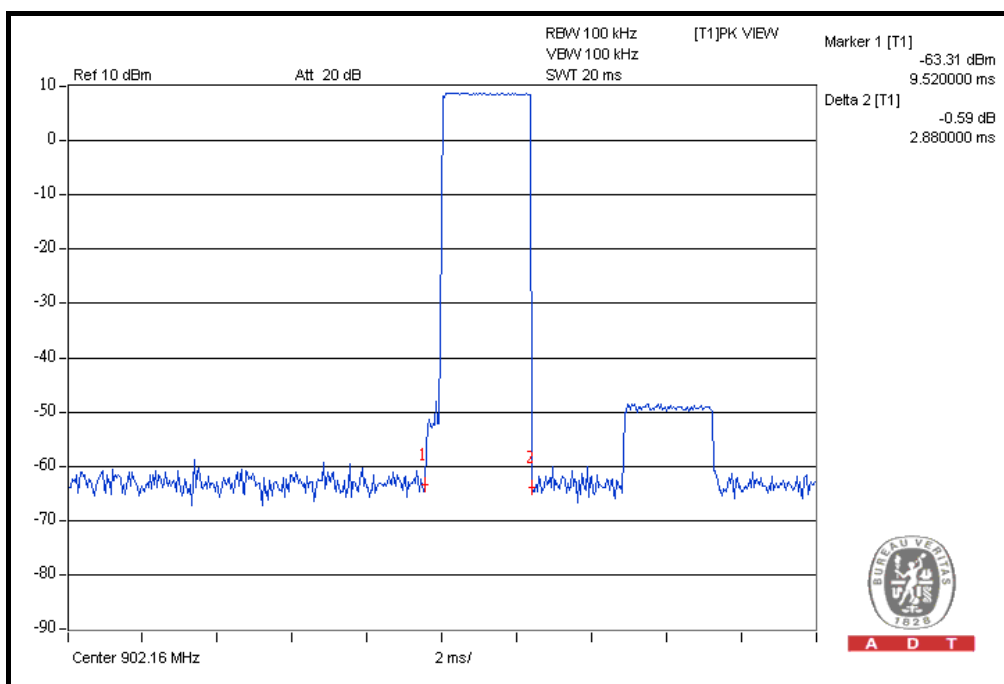
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

$$20 \log (\text{Duty cycle}) = 20 \log (2.88 \text{ ms} / 100 \text{ ms}) = -30.8\text{dB}$$

Please see page 35 for plotted duty.



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BELOW 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 63%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	177.67	18.9 QP	43.5	-24.6	1.50 H	73	6.40	12.50
2	327.38	31.2 QP	46.0	-14.8	1.00 H	82	16.20	15.00
3	471.25	25.6 QP	46.0	-20.4	2.00 H	64	5.80	19.80
4	574.30	30.8 QP	46.0	-15.2	1.50 H	79	8.80	22.00
5	706.51	34.9 QP	46.0	-11.1	1.00 H	241	9.80	25.10
6	984.55	37.0 QP	54.0	-17.0	1.50 H	73	8.20	28.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	70.73	19.0 QP	40.0	-21.0	2.00 V	82	6.10	12.90
2	228.22	23.5 QP	46.0	-22.5	2.00 V	10	11.10	12.40
3	327.38	18.6 QP	46.0	-27.4	1.00 V	337	3.60	15.00
4	706.51	26.6 QP	46.0	-19.4	2.00 V	148	1.50	25.10
5	737.62	27.8 QP	46.0	-18.2	2.00 V	160	2.40	25.40
6	821.23	34.6 QP	46.0	-11.4	2.00 V	190	8.10	26.50

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 126	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 63%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	313.77	29.0 QP	46.0	-17.0	1.00 H	244	14.60	14.40
2	352.65	27.8 QP	46.0	-18.2	1.00 H	103	11.70	16.10
3	471.25	26.2 QP	46.0	-19.8	2.00 H	265	6.40	19.80
4	560.69	28.5 QP	46.0	-17.5	1.50 H	79	6.80	21.70
5	706.51	34.8 QP	46.0	-11.2	1.00 H	106	9.70	25.10
6	984.55	43.0 QP	54.0	-11.0	1.50 H	265	14.20	28.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.68	19.7 QP	40.0	-20.3	1.50 V	130	4.90	14.80
2	230.16	24.6 QP	46.0	-21.4	1.50 V	235	12.10	12.50
3	471.25	21.9 QP	46.0	-24.1	1.00 V	295	2.10	19.80
4	737.62	35.5 QP	46.0	-10.5	2.00 V	181	10.10	25.40
5	846.50	40.3 QP	46.0	-5.7	1.50 V	154	13.40	26.90
6	984.55	37.5 QP	54.0	-16.5	2.00 V	319	8.70	28.80

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 252	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	3.7Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 63%RH 1020 hPa	TEST MODE	A
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	302.10	29.1 QP	46.0	-16.9	1.00 H	259	15.20	13.90
2	379.87	27.1 QP	46.0	-18.9	1.00 H	268	9.80	17.30
3	471.25	32.4 QP	46.0	-13.6	1.50 H	121	12.60	19.80
4	549.03	33.0 QP	46.0	-13.0	1.50 H	268	11.50	21.50
5	706.51	33.4 QP	46.0	-12.6	1.00 H	229	8.30	25.10
6	984.55	51.3 QP	54.0	-2.7	1.50 H	262	22.50	28.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	224.33	24.3 QP	46.0	-21.7	1.50 V	10	12.10	12.20
2	379.87	18.5 QP	46.0	-27.5	1.50 V	10	1.20	17.30
3	471.25	25.8 QP	46.0	-20.2	2.00 V	349	6.00	19.80
4	549.03	26.1 QP	46.0	-19.9	1.50 V	187	4.60	21.50
5	803.73	31.8 QP	46.0	-14.2	2.00 V	190	5.70	26.10
6	984.55	44.3 QP	54.0	-9.7	2.00 V	343	15.50	28.80

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	B
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	101.84	33.9 QP	43.5	-9.6	2.00 H	61	22.30	11.60
2	195.16	31.3 QP	43.5	-12.2	1.00 H	70	20.50	10.80
3	243.77	31.5 QP	46.0	-14.5	1.00 H	34	18.00	13.50
4	430.42	19.2 QP	46.0	-26.8	1.50 H	253	0.30	18.90
5	681.24	35.5 QP	46.0	-10.5	1.00 H	205	10.90	24.60
6	840.67	26.5 QP	46.0	-19.5	1.00 H	160	-0.30	26.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.62	34.0 QP	40.0	-6.0	1.00 V	10	18.90	15.10
2	103.78	33.4 QP	43.5	-10.1	1.50 V	301	21.80	11.60
3	234.05	29.0 QP	46.0	-17.0	1.50 V	328	16.20	12.80
4	492.64	21.2 QP	46.0	-24.8	1.00 V	58	0.90	20.30
5	681.24	36.4 QP	46.0	-9.6	1.00 V	298	11.80	24.60
6	869.83	26.6 QP	46.0	-19.4	1.50 V	193	-0.80	27.40

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 63%RH 1020 hPa	TEST MODE	C
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	131.00	37.7 QP	43.5	-5.8	2.00 H	82	25.40	12.30
2	278.77	38.4 QP	46.0	-7.6	1.50 H	37	24.60	13.80
3	352.65	40.5 QP	46.0	-5.5	1.00 H	211	24.40	16.10
4	416.81	35.6 QP	46.0	-10.4	2.00 H	181	17.10	18.50
5	630.69	35.4 QP	46.0	-10.6	1.50 H	169	12.10	23.30
6	655.96	42.0 QP	46.0	-4.0	1.00 H	184	18.00	24.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	64.90	35.3 QP	40.0	-4.7	1.50 V	142	22.20	13.10
2	278.77	33.2 QP	46.0	-12.8	2.00 V	136	19.40	13.80
3	335.15	35.7 QP	46.0	-10.3	1.50 V	322	20.40	15.30
4	416.81	35.0 QP	46.0	-11.0	1.00 V	100	16.50	18.50
5	655.96	37.0 QP	46.0	-9.0	1.00 V	34	13.00	24.00
6	941.77	40.4 QP	46.0	-5.6	1.00 V	64	11.90	28.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 126	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 63%RH 1020 hPa	TEST MODE	C
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	131.00	37.7 QP	43.5	-5.8	1.50 H	73	25.40	12.30
2	245.72	37.1 QP	46.0	-8.9	1.50 H	256	23.50	13.60
3	278.77	38.3 QP	46.0	-7.7	1.00 H	25	24.50	13.80
4	352.65	40.6 QP	46.0	-5.4	1.00 H	208	24.50	16.10
5	416.81	36.4 QP	46.0	-9.6	2.00 H	193	17.90	18.50
6	669.57	41.7 QP	46.0	-4.3	1.50 H	10	17.40	24.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	64.90	35.3 QP	40.0	-4.7	2.00 V	10	22.20	13.10
2	131.00	33.1 QP	43.5	-10.4	1.50 V	10	20.80	12.30
3	669.57	40.3 QP	46.0	-5.7	1.00 V	100	16.00	24.30
4	737.62	43.9 QP	46.0	-2.1	1.50 V	247	18.50	25.40
5	875.67	40.3 QP	46.0	-5.7	1.00 V	58	12.80	27.50
6	984.55	43.9 QP	54.0	-10.1	1.00 V	70	15.10	28.80

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 252	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 63%RH 1020 hPa	TEST MODE	C
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	131.00	37.4 QP	43.5	-6.1	1.50 H	70	25.10	12.30
2	245.72	40.0 QP	46.0	-6.0	1.50 H	244	26.40	13.60
3	352.65	40.6 QP	46.0	-5.4	1.00 H	211	24.50	16.10
4	385.70	37.6 QP	46.0	-8.4	1.00 H	10	20.10	17.50
5	648.18	35.8 QP	46.0	-10.2	1.50 H	181	12.00	23.80
6	869.83	34.9 QP	46.0	-11.1	1.50 H	148	7.50	27.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	64.90	35.2 QP	40.0	-4.8	1.00 V	355	22.10	13.10
2	131.00	33.2 QP	43.5	-10.3	1.50 V	1	20.90	12.30
3	245.72	38.9 QP	46.0	-7.1	1.50 V	106	25.30	13.60
4	335.15	35.6 QP	46.0	-10.4	1.50 V	331	20.30	15.30
5	401.26	35.6 QP	46.0	-10.4	1.50 V	115	17.50	18.10
6	648.18	32.8 QP	46.0	-13.2	1.50 V	232	9.00	23.80

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1020 hPa	TEST MODE	D
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	113.50	32.8 QP	43.5	-10.7	1.50 H	265	21.30	11.50
2	146.56	33.1 QP	43.5	-10.4	2.00 H	289	19.40	13.70
3	255.44	36.8 QP	46.0	-9.2	1.50 H	274	22.90	13.90
4	375.98	36.4 QP	46.0	-9.6	1.00 H	10	19.30	17.10
5	659.85	37.0 QP	46.0	-9.0	1.00 H	37	12.90	24.10
6	852.33	29.8 QP	46.0	-16.2	1.50 H	106	2.80	27.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	59.06	36.0 QP	40.0	-4.0	1.00 V	154	23.10	12.90
2	270.99	33.1 QP	46.0	-12.9	2.00 V	166	19.30	13.80
3	342.93	32.7 QP	46.0	-13.3	1.50 V	316	17.00	15.70
4	440.14	31.0 QP	46.0	-15.0	1.00 V	10	11.90	19.10
5	659.85	36.7 QP	46.0	-9.3	1.50 V	49	12.60	24.10
6	852.33	30.1 QP	46.0	-15.9	1.50 V	37	3.10	27.00

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	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 a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Dec. 16, 2009	Dec. 15, 2010
RF signal cable Woken	5D-FB	Cable-HYC01-01	Nov. 12, 2009	Nov. 11, 2010
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jun. 18, 2009	Jun. 17, 2010
LISN ROHDE & SCHWARZ	ESH3-Z5	835239/001	Feb. 24, 2009	Feb. 23, 2010
Software ADT	ADT_Conc_ V7.3.7	NA	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 1.
 3. The VCCI Site Registration No. is C-2040.

4.2.3 TEST PROCEDURES

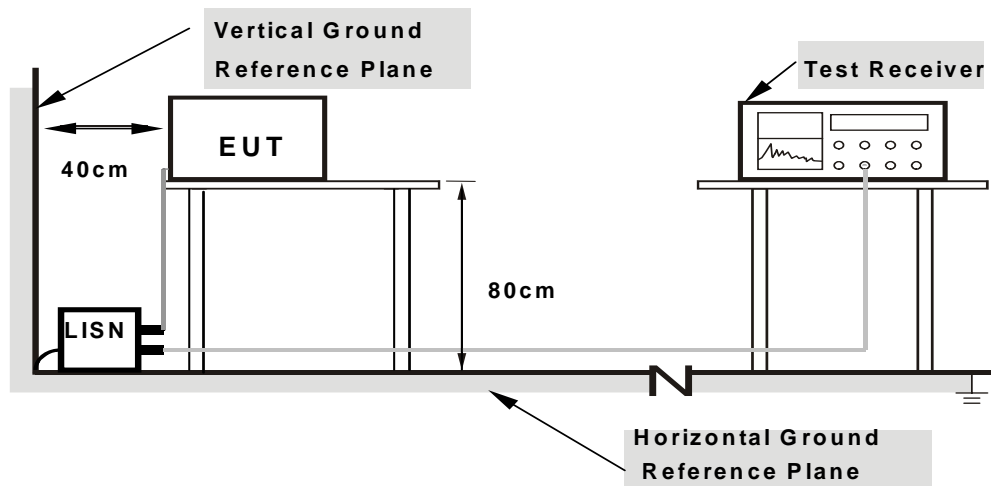
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



- Note:** 1.Support units were connected to second LISN.
 2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

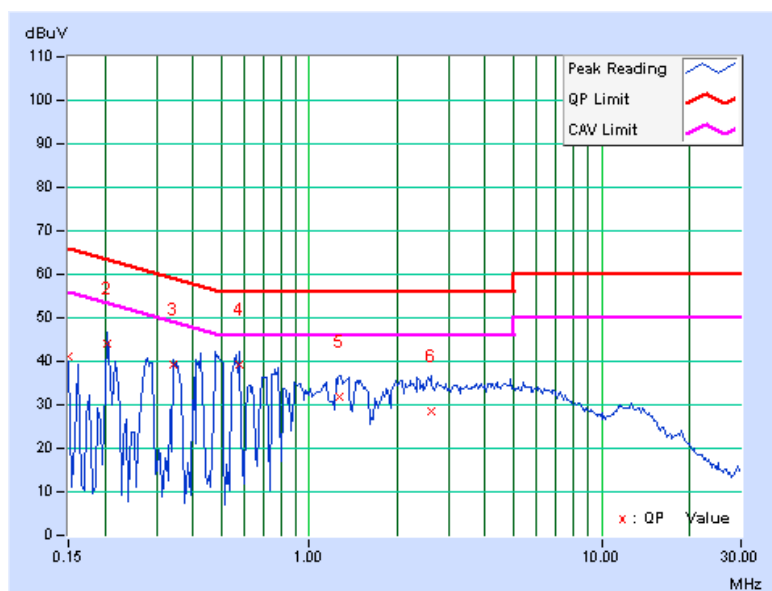
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.16	40.81	-	40.97	-	66.00	56.00	-25.03	-
2	0.205	0.16	43.88	-	44.04	-	63.42	53.42	-19.38	-
3	0.341	0.17	39.15	-	39.32	-	59.17	49.17	-19.84	-
4	0.576	0.19	38.89	-	39.08	-	56.00	46.00	-16.92	-
5	1.266	0.25	31.57	-	31.82	-	56.00	46.00	-24.18	-
6	2.605	0.32	28.22	-	28.54	-	56.00	46.00	-27.46	-

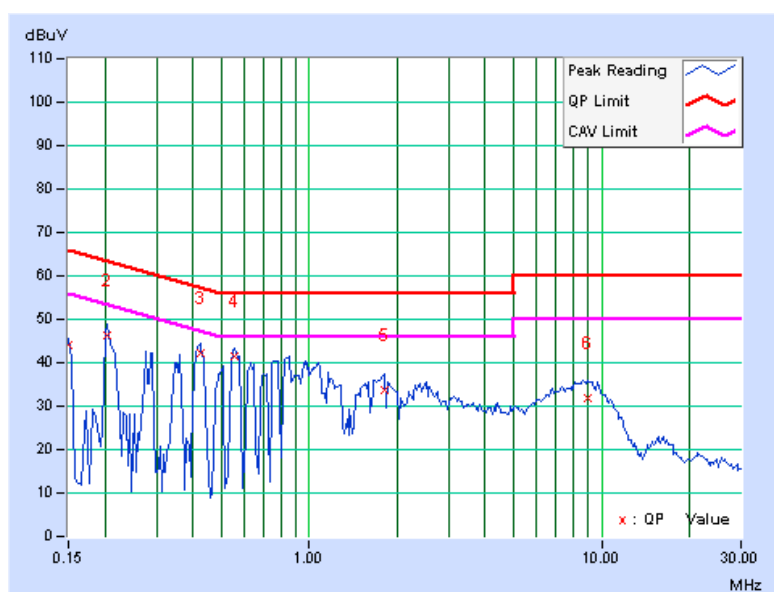
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.16	43.89	-	44.05	-	66.00	56.00	-21.95	-
2	0.205	0.16	46.30	-	46.46	-	63.42	53.42	-16.96	-
3	0.423	0.18	42.04	-	42.22	-	57.38	47.38	-15.16	-
4	0.552	0.19	41.26	-	41.45	-	56.00	46.00	-14.55	-
5	1.801	0.29	33.28	-	33.57	-	56.00	46.00	-22.43	-
6	8.934	0.35	31.60	-	31.95	-	60.00	50.00	-28.05	-

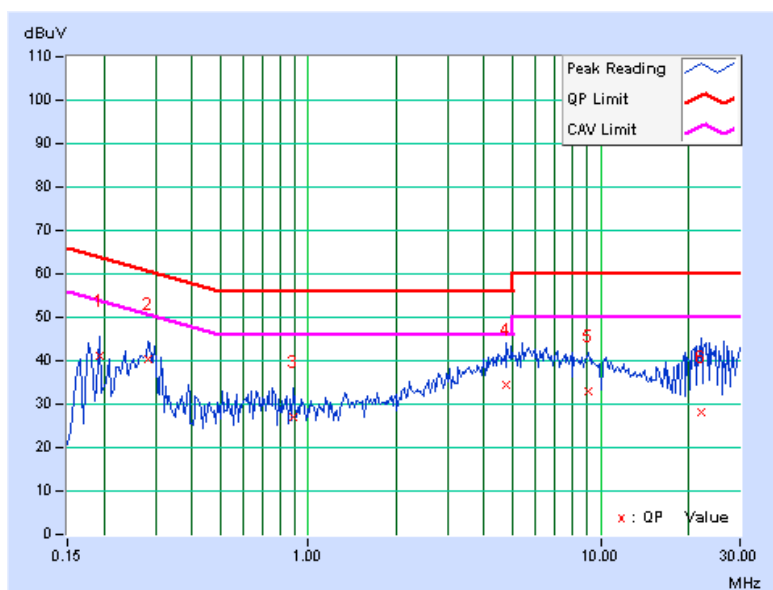
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



CHANNEL	Channel 1	6dB BANDWIDTH	9kHz
PHASE	Line 1	TEST MODE	C

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.193	0.16	41.12	-	41.28	-	63.91	53.91	-22.63	-
2	0.283	0.17	40.37	-	40.54	-	60.73	50.73	-20.19	-
3	0.892	0.22	26.79	-	27.01	-	56.00	46.00	-28.99	-
4	4.777	0.35	34.14	-	34.49	-	56.00	46.00	-21.51	-
5	9.055	0.35	32.74	-	33.09	-	60.00	50.00	-26.91	-
6	22.074	0.65	27.41	-	28.06	-	60.00	50.00	-31.94	-

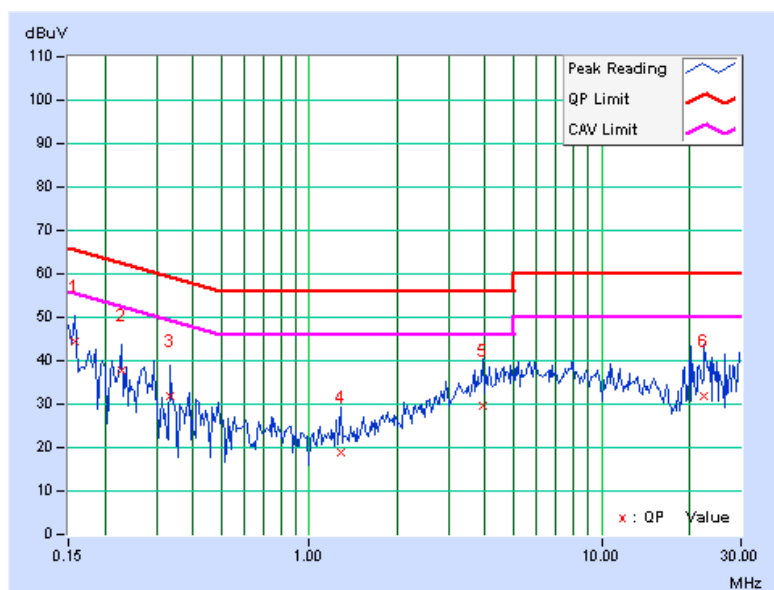
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



CHANNEL	Channel 1	6dB BANDWIDTH	9kHz
PHASE	Line 2	TEST MODE	C

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.13	44.28	-	44.41	-	65.58	55.58	-21.17	-
2	0.228	0.13	37.63	-	37.76	-	62.52	52.52	-24.75	-
3	0.334	0.15	31.71	-	31.86	-	59.36	49.36	-27.50	-
4	1.281	0.24	18.75	-	18.99	-	56.00	46.00	-37.01	-
5	3.910	0.36	29.17	-	29.53	-	56.00	46.00	-26.47	-
6	22.441	0.89	30.82	-	31.71	-	60.00	50.00	-28.29	-

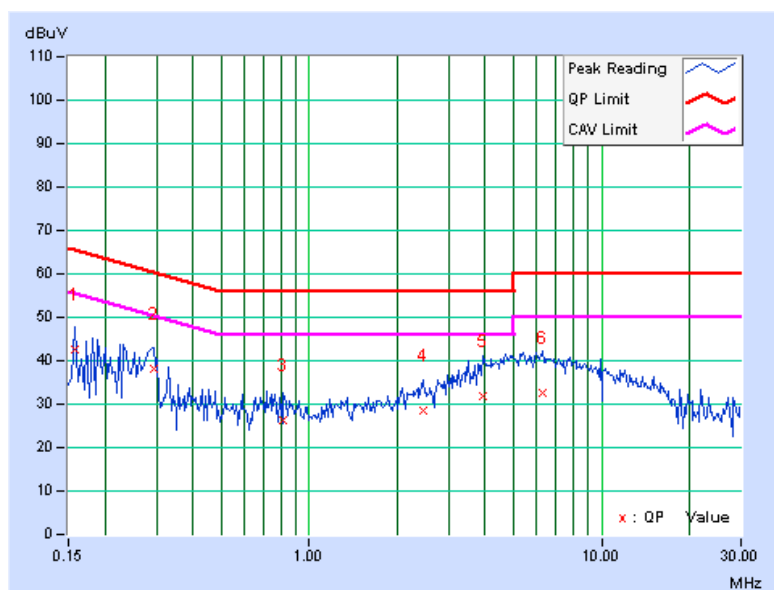
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



CHANNEL	Channel 126	6dB BANDWIDTH	9kHz
PHASE	Line 1	TEST MODE	C

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.16	42.30	-	42.46	-	65.58	55.58	-23.12	-
2	0.295	0.17	37.99	-	38.16	-	60.40	50.40	-22.24	-
3	0.818	0.21	26.08	-	26.29	-	56.00	46.00	-29.71	-
4	2.445	0.32	28.25	-	28.57	-	56.00	46.00	-27.43	-
5	3.945	0.35	31.53	-	31.88	-	56.00	46.00	-24.12	-
6	6.262	0.35	32.38	-	32.73	-	60.00	50.00	-27.27	-

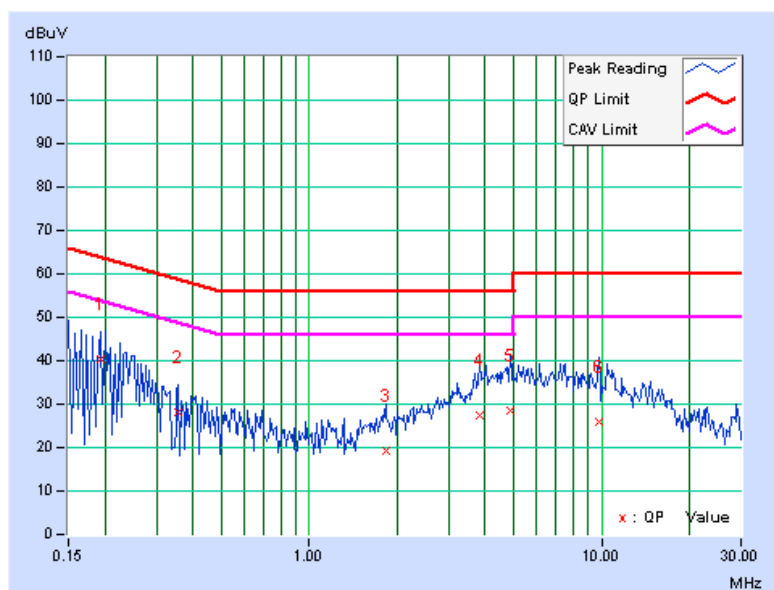
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



CHANNEL	Channel 126	6dB BANDWIDTH	9kHz
PHASE	Line 2	TEST MODE	C

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.193	0.13	40.08	-	40.21	-	63.91	53.91	-23.70	-
2	0.357	0.15	27.93	-	28.08	-	58.80	48.80	-30.71	-
3	1.832	0.29	19.14	-	19.43	-	56.00	46.00	-36.57	-
4	3.820	0.35	26.91	-	27.26	-	56.00	46.00	-28.74	-
5	4.848	0.37	28.23	-	28.60	-	56.00	46.00	-27.40	-
6	9.836	0.44	25.65	-	26.09	-	60.00	50.00	-33.91	-

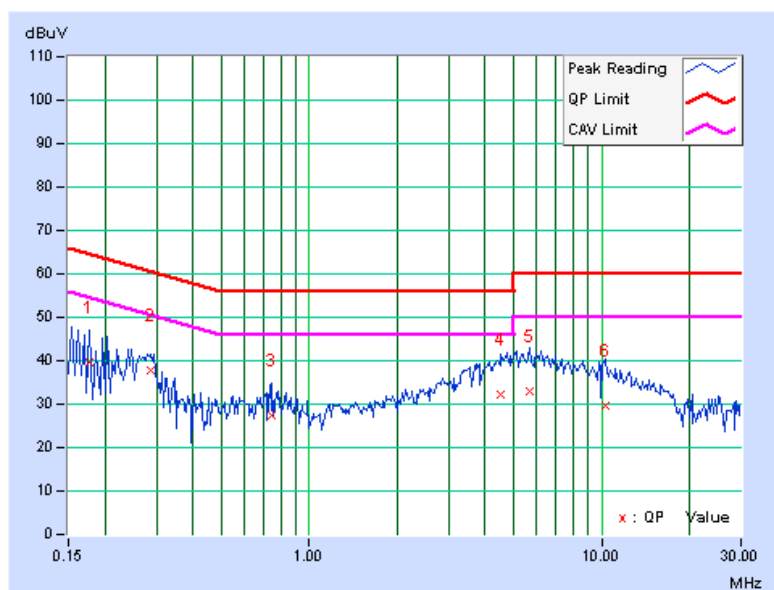
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



CHANNEL	Channel 252	6dB BANDWIDTH	9kHz
PHASE	Line 1	TEST MODE	C

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.16	39.46	-	39.62	-	64.61	54.61	-24.99	-
2	0.287	0.17	37.48	-	37.65	-	60.62	50.62	-22.97	-
3	0.748	0.21	27.15	-	27.36	-	56.00	46.00	-28.64	-
4	4.520	0.35	32.04	-	32.39	-	56.00	46.00	-23.61	-
5	5.711	0.35	32.46	-	32.81	-	60.00	50.00	-27.19	-
6	10.313	0.36	29.11	-	29.47	-	60.00	50.00	-30.53	-

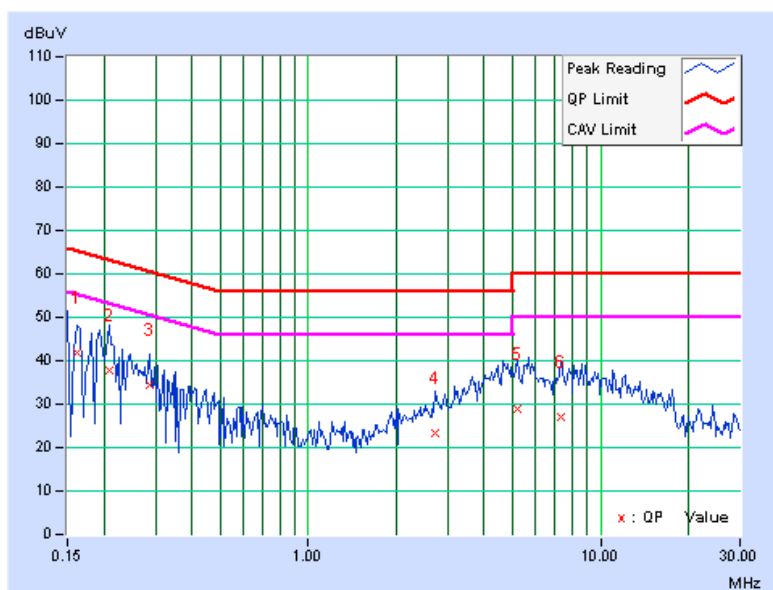
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



CHANNEL	Channel 252	6dB BANDWIDTH	9kHz
PHASE	Line 2	TEST MODE	C

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	0.13	41.84	-	41.97	-	65.38	55.38	-23.41	-
2	0.209	0.13	37.73	-	37.86	-	63.26	53.26	-25.40	-
3	0.287	0.14	34.48	-	34.62	-	60.62	50.62	-26.00	-
4	2.730	0.32	23.07	-	23.39	-	56.00	46.00	-32.61	-
5	5.203	0.38	28.48	-	28.86	-	60.00	50.00	-31.14	-
6	7.316	0.40	26.81	-	27.21	-	60.00	50.00	-32.79	-

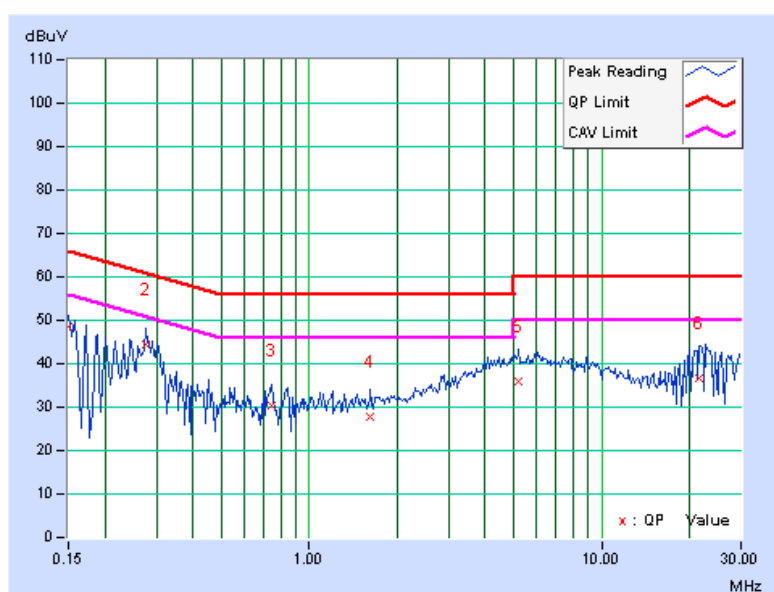
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	D		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.16	48.33	-	48.49	-	66.00	56.00	-17.51	-
2	0.275	0.17	44.39	-	44.56	-	60.97	50.97	-16.41	-
3	0.740	0.21	30.03	-	30.24	-	56.00	46.00	-25.76	-
4	1.621	0.28	27.41	-	27.69	-	56.00	46.00	-28.31	-
5	5.191	0.35	35.68	-	36.03	-	60.00	50.00	-23.97	-
6	21.633	0.66	35.85	-	36.51	-	60.00	50.00	-23.49	-

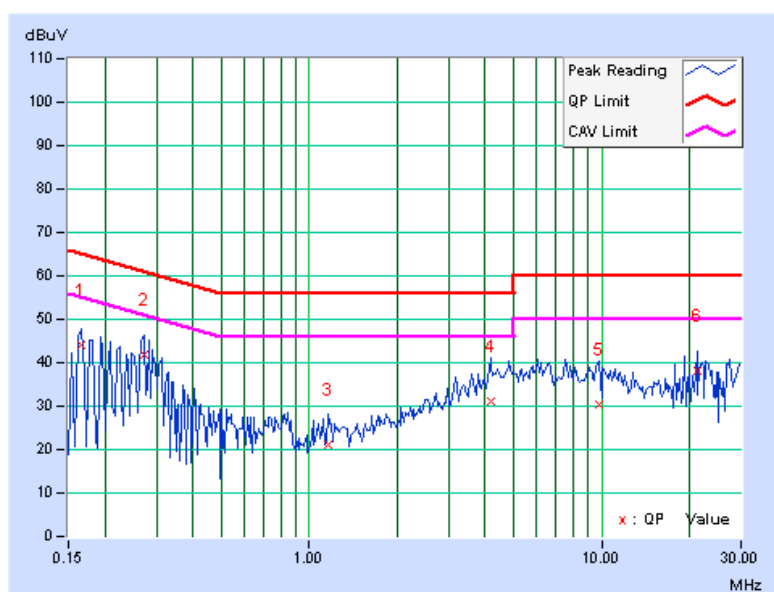
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	D		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.13	44.08	-	44.21	-	65.18	55.18	-20.97	-
2	0.271	0.14	41.54	-	41.68	-	61.08	51.08	-19.40	-
3	1.160	0.23	20.79	-	21.02	-	56.00	46.00	-34.98	-
4	4.164	0.36	30.92	-	31.28	-	56.00	46.00	-24.72	-
5	9.785	0.44	29.94	-	30.38	-	60.00	50.00	-29.62	-
6	21.230	0.90	37.32	-	38.22	-	60.00	50.00	-21.78	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



4.3 NUMBER OF HOPPING FREQUENCY USED

4.3.1 LIMIT OF HOPPING FREQUENCY USED

At least 50 channels frequencies, and should be equally spaced.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	May 13, 2009	May 12, 2010

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

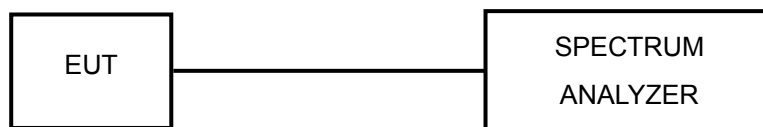
4.3.3 TEST PROCEDURES

- Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
- Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
- Set the SA on MaxHold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
- Set the SA on View mode and then plot the result on SA screen.
- Repeat above procedures until all frequencies measured were complete.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



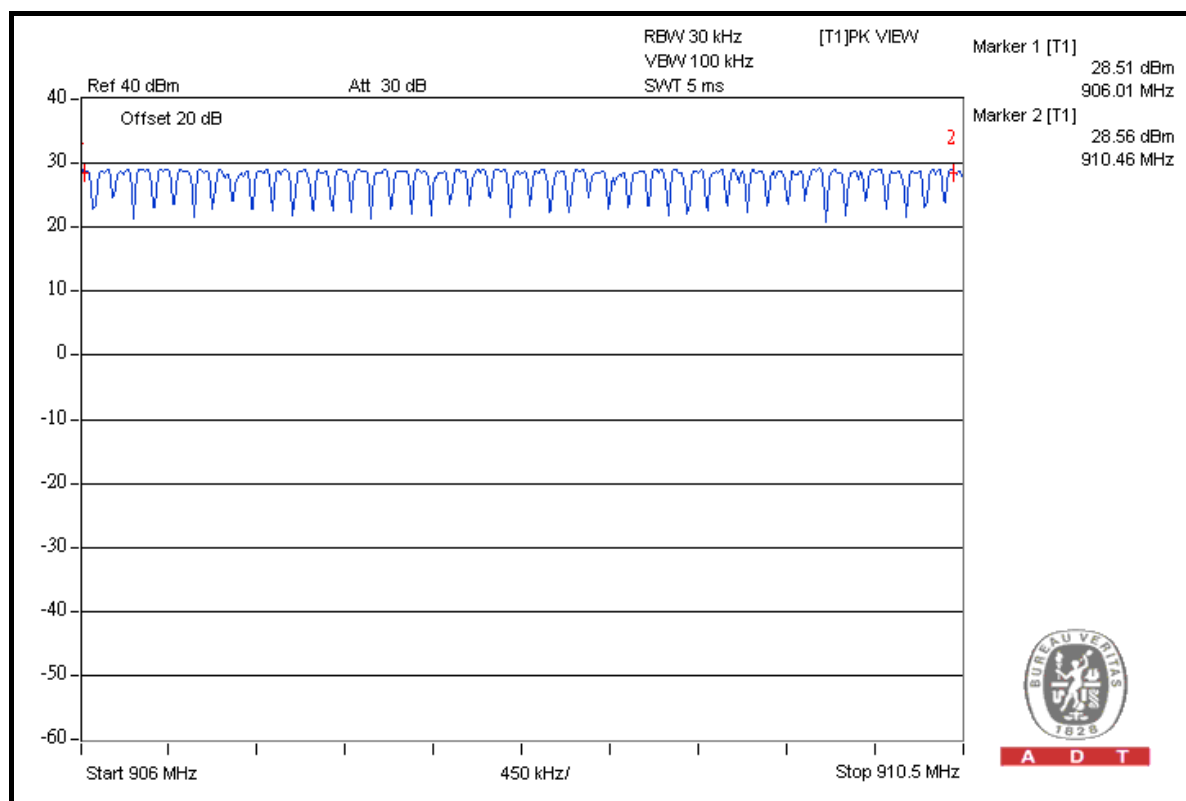
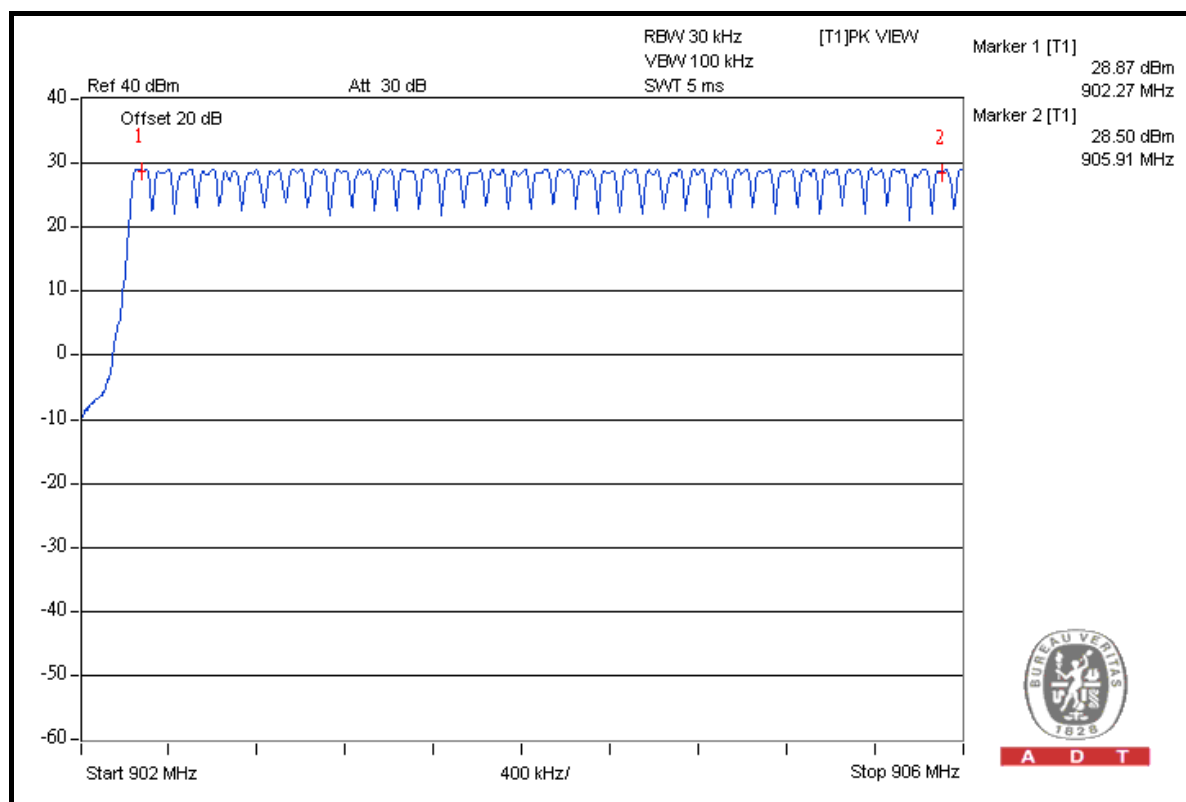
4.3.6 TEST RESULTS

There are 252 hopping frequencies in the hopping mode. Please refer to next page for the test result. On the plots, it shows that the hopping frequencies are equally spaced.



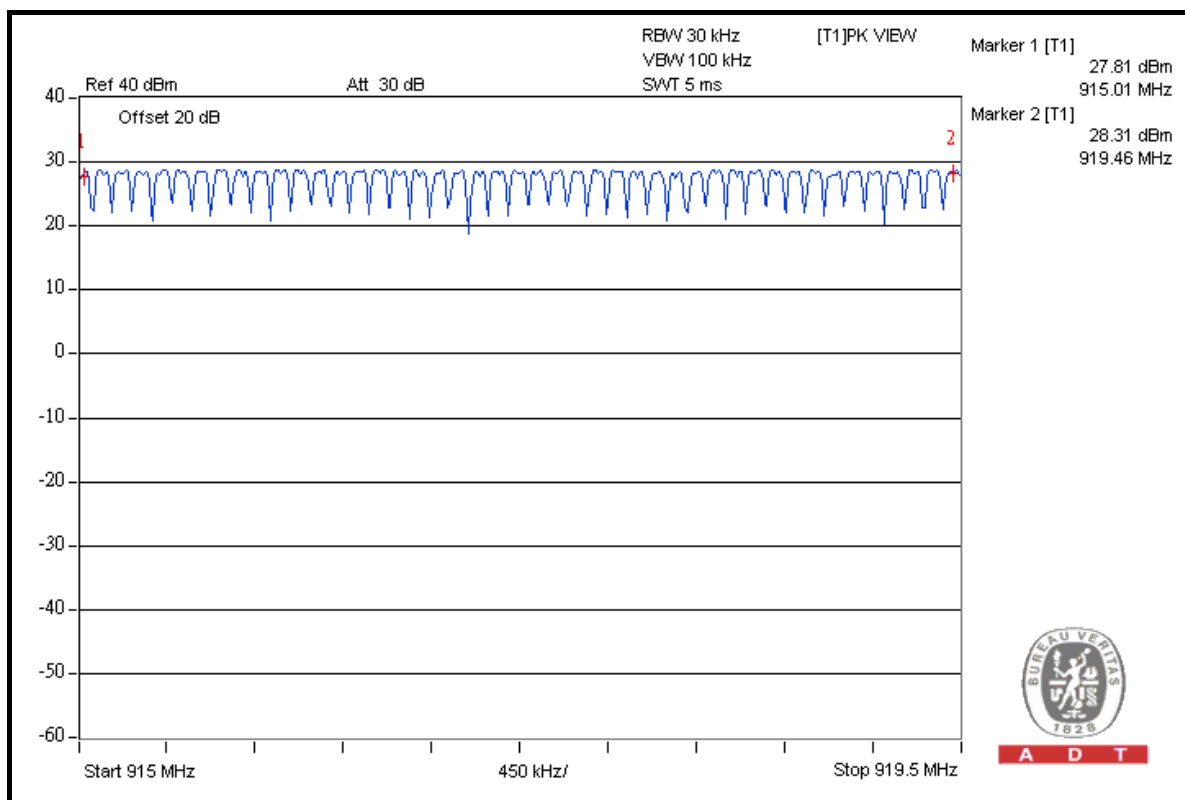
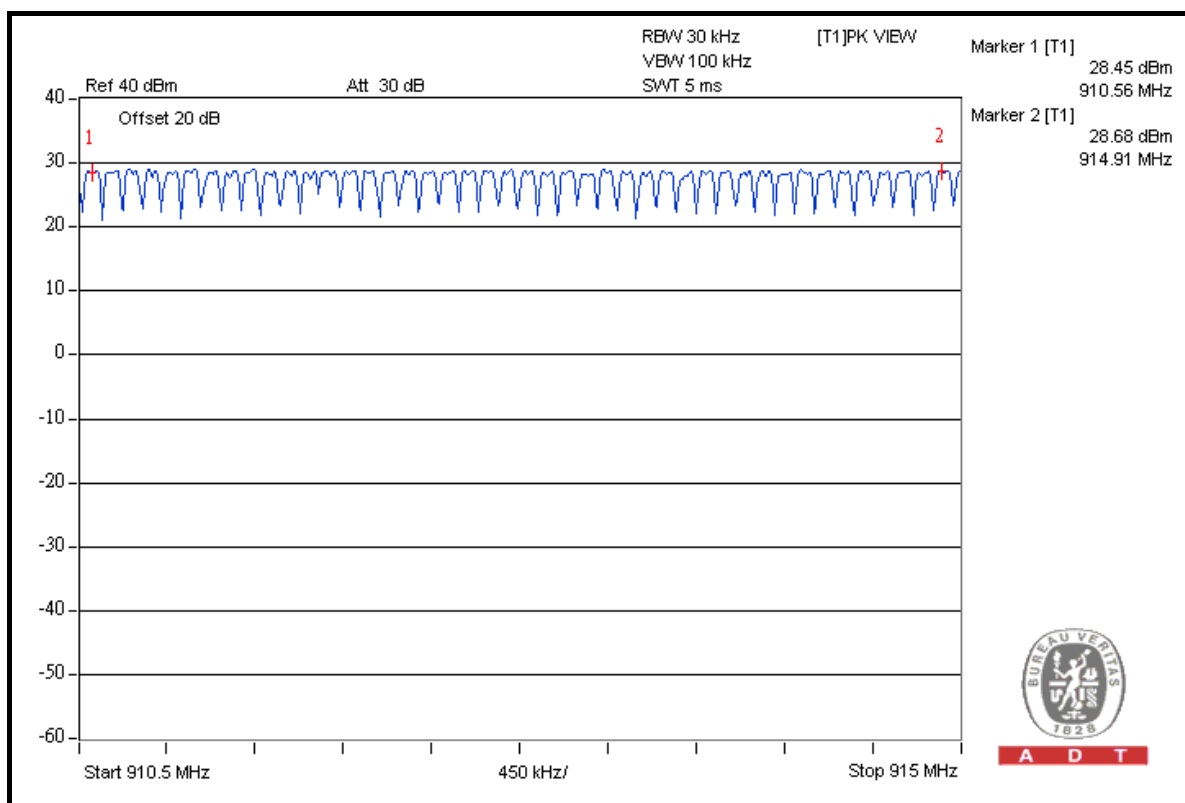
A D T

TEST MODE A



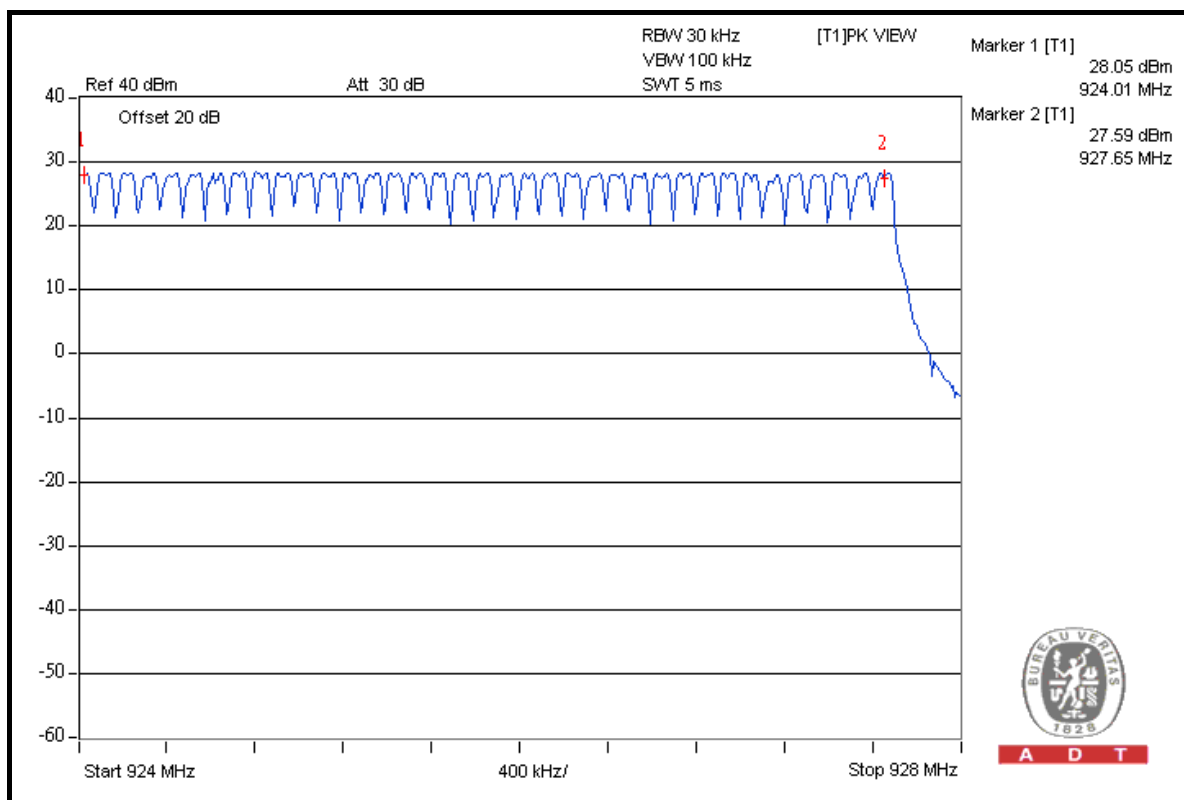
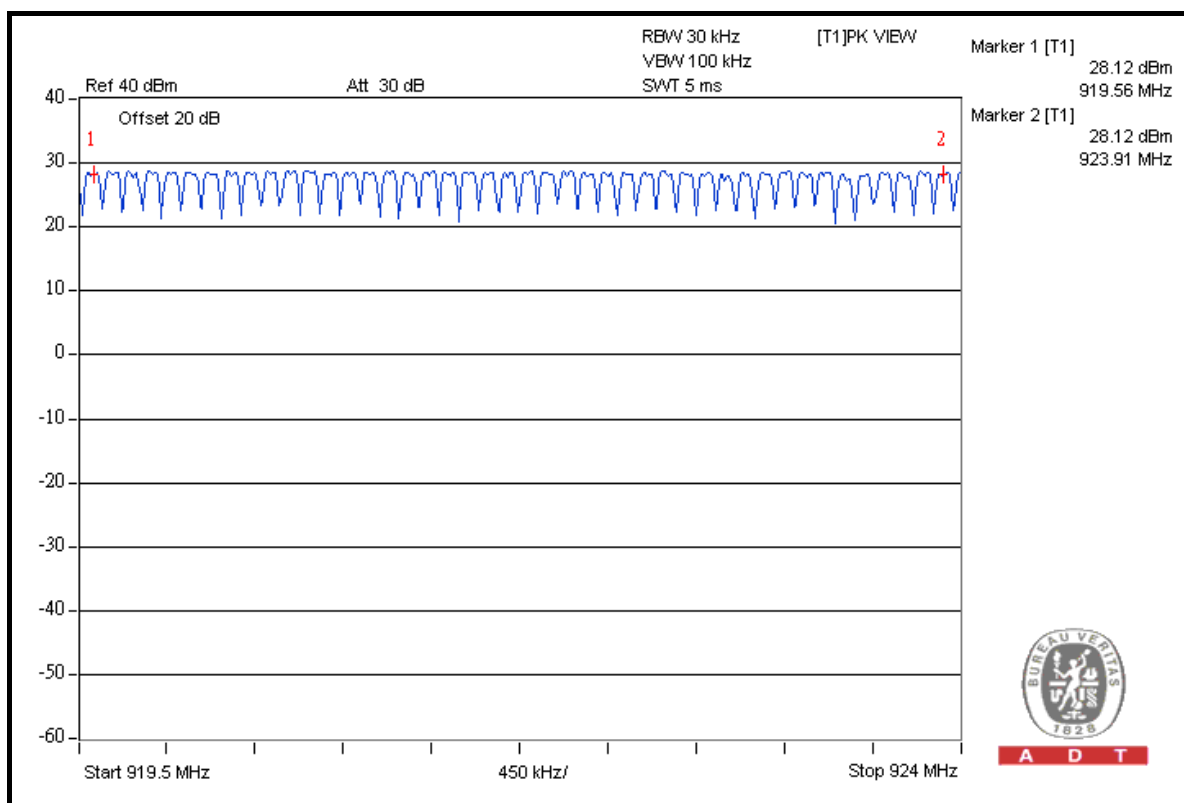


A D T





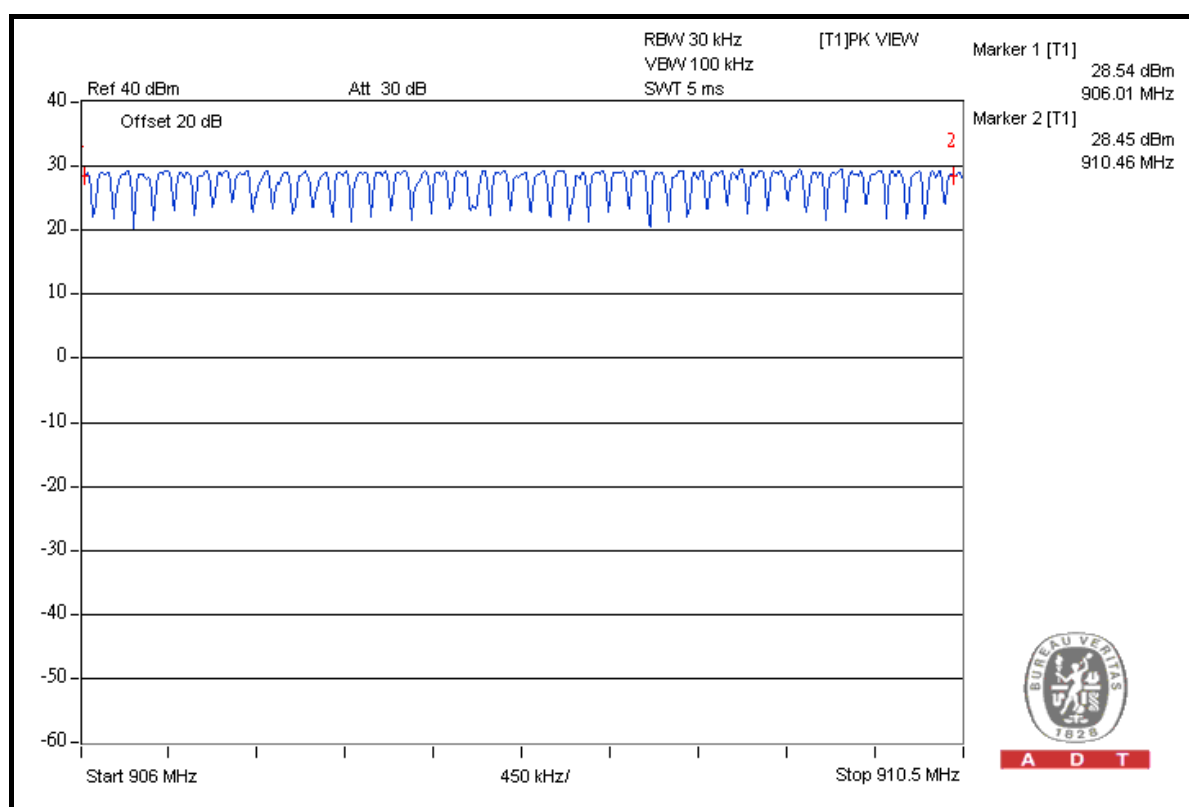
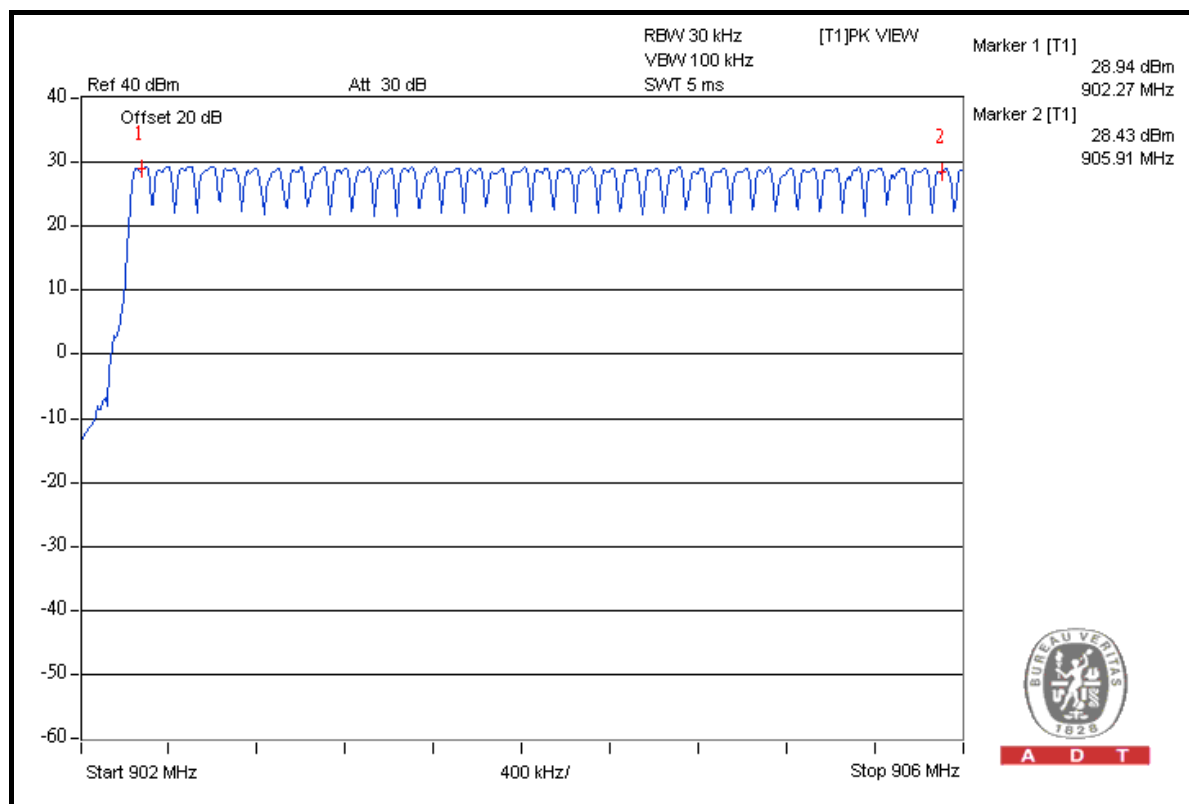
A D T





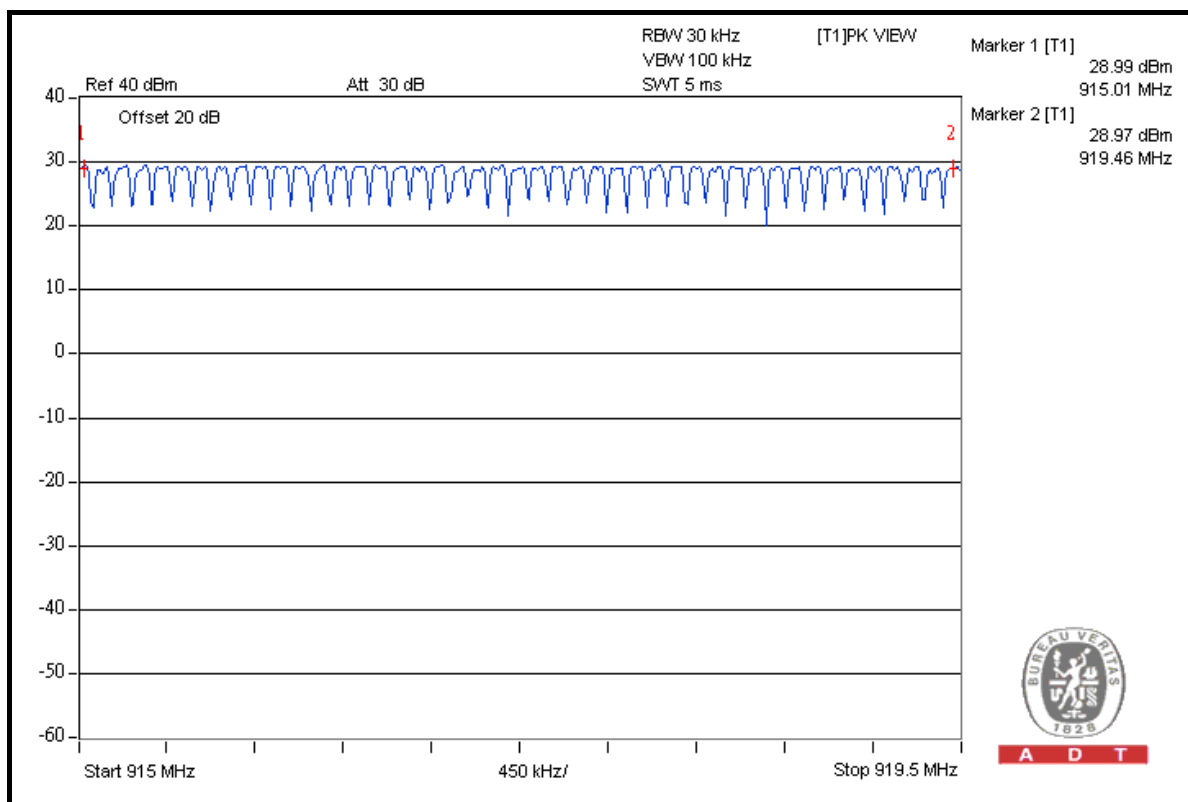
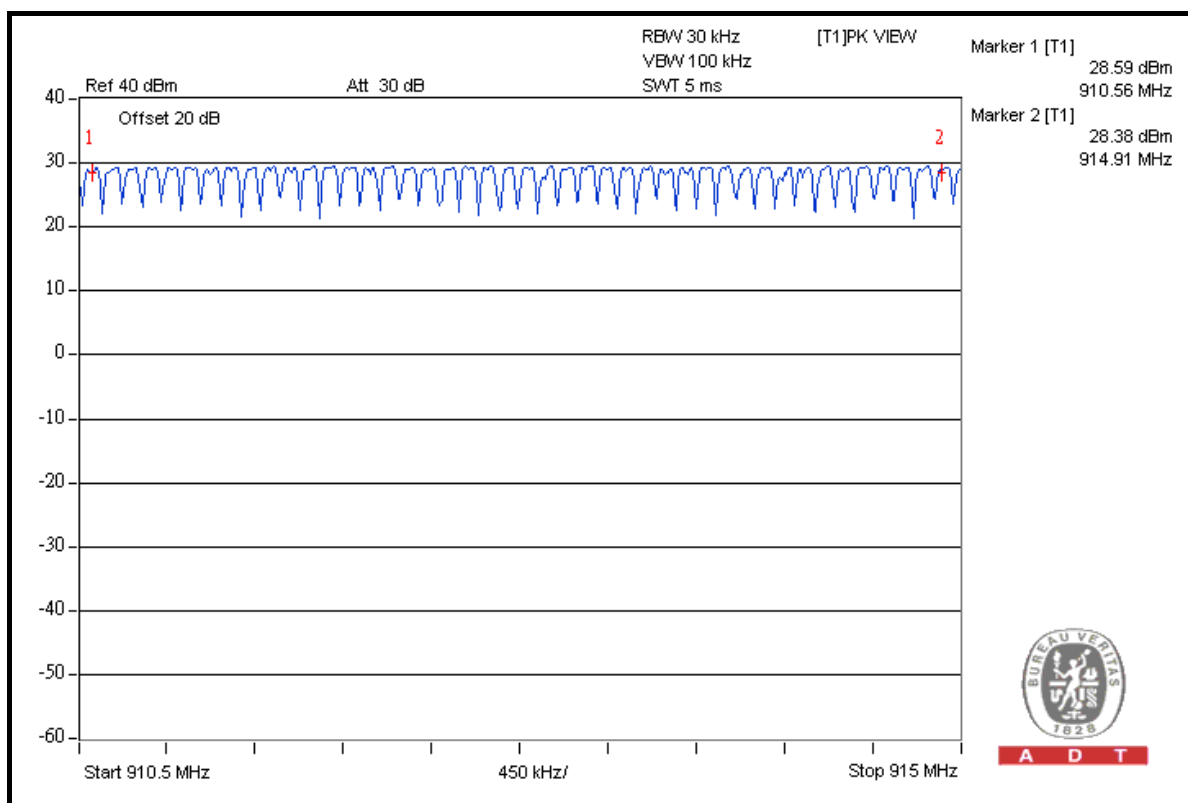
A D T

TEST MODE C



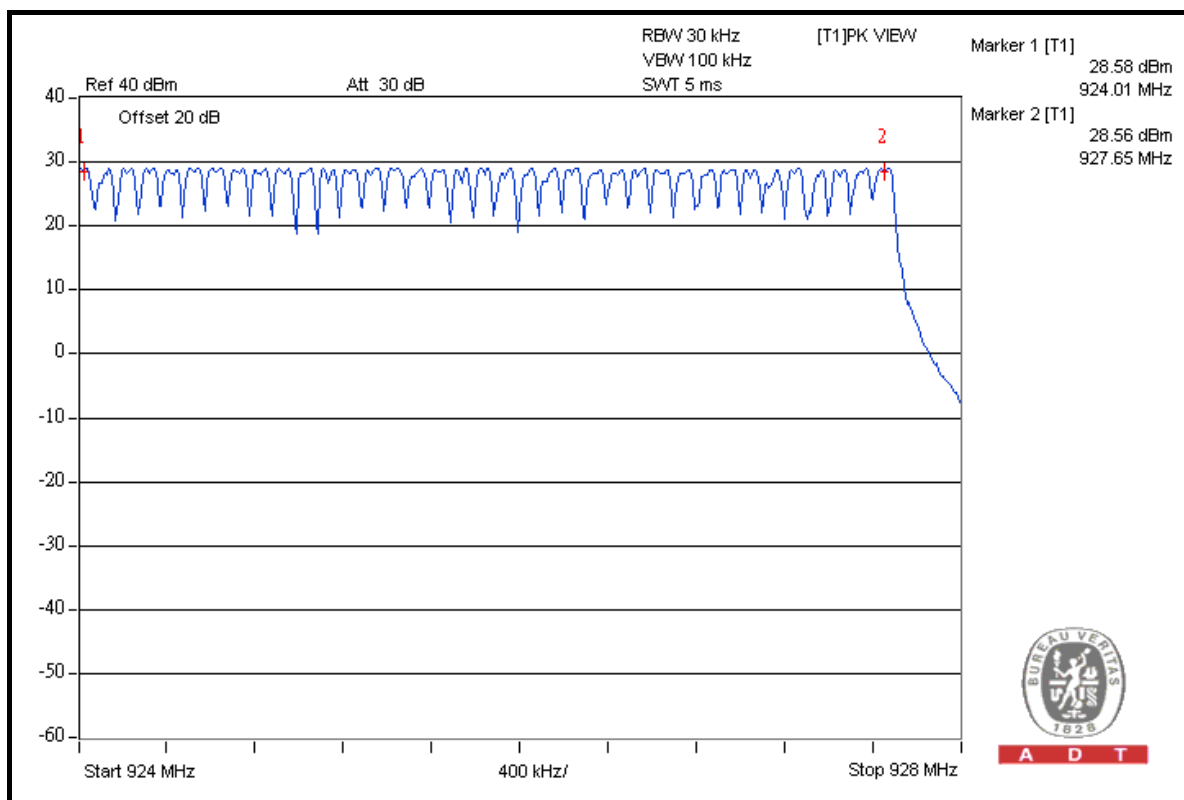
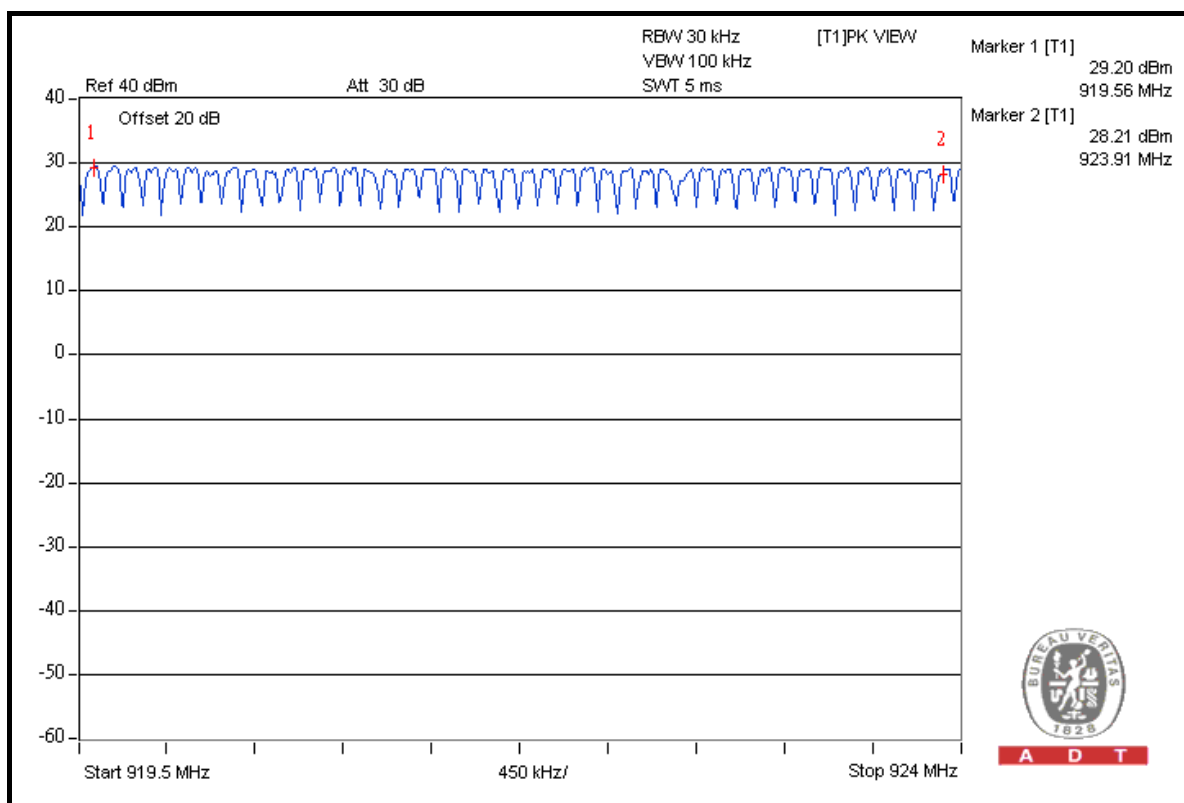


A D T





A D T



4.4 DWELL TIME ON EACH CHANNEL

4.4.1 LIMIT OF DWELL TIME USED

The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period;

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	May 13, 2009	May 12, 2010

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST PROCEDURES

- Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
- Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
- Adjust the center frequency of SA on any frequency be measured and set SA to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
- Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
- Repeat above procedures until all different time-slot modes have been completed.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 TEST SETUP

Same as 4.3.5.



A D T

4.4.6 TEST RESULTS

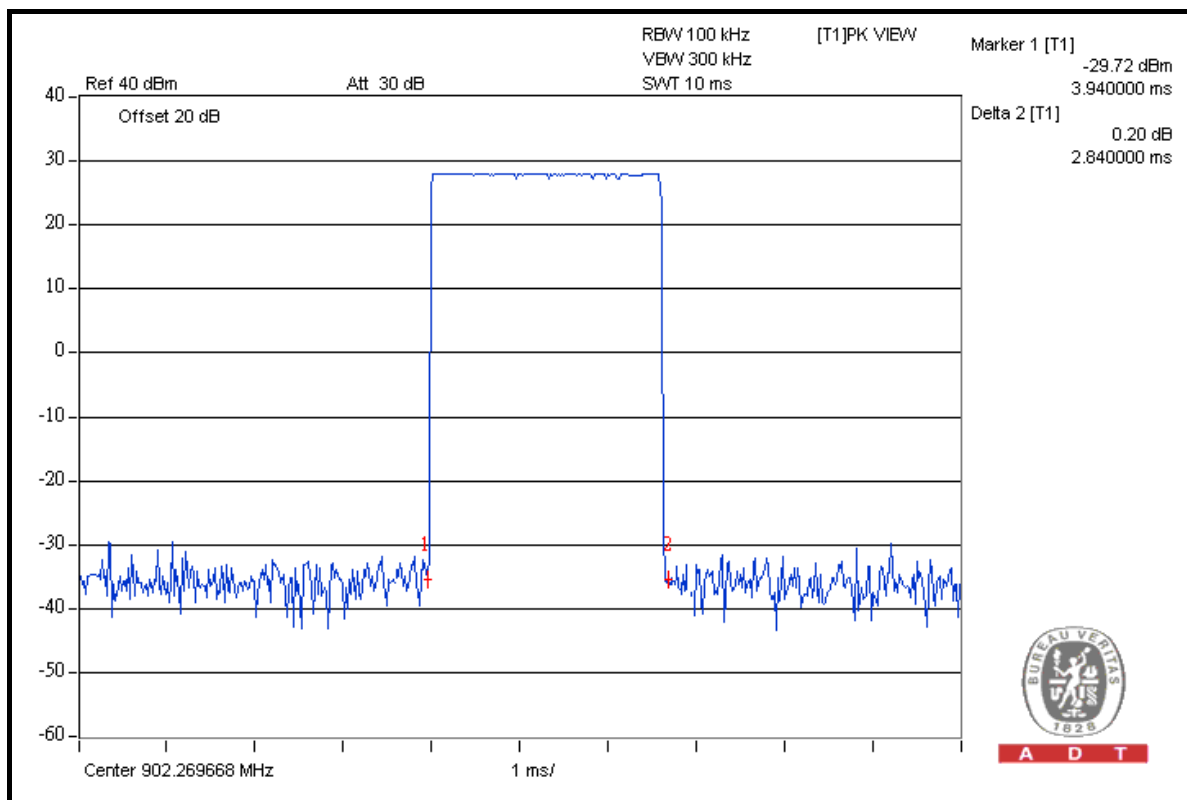
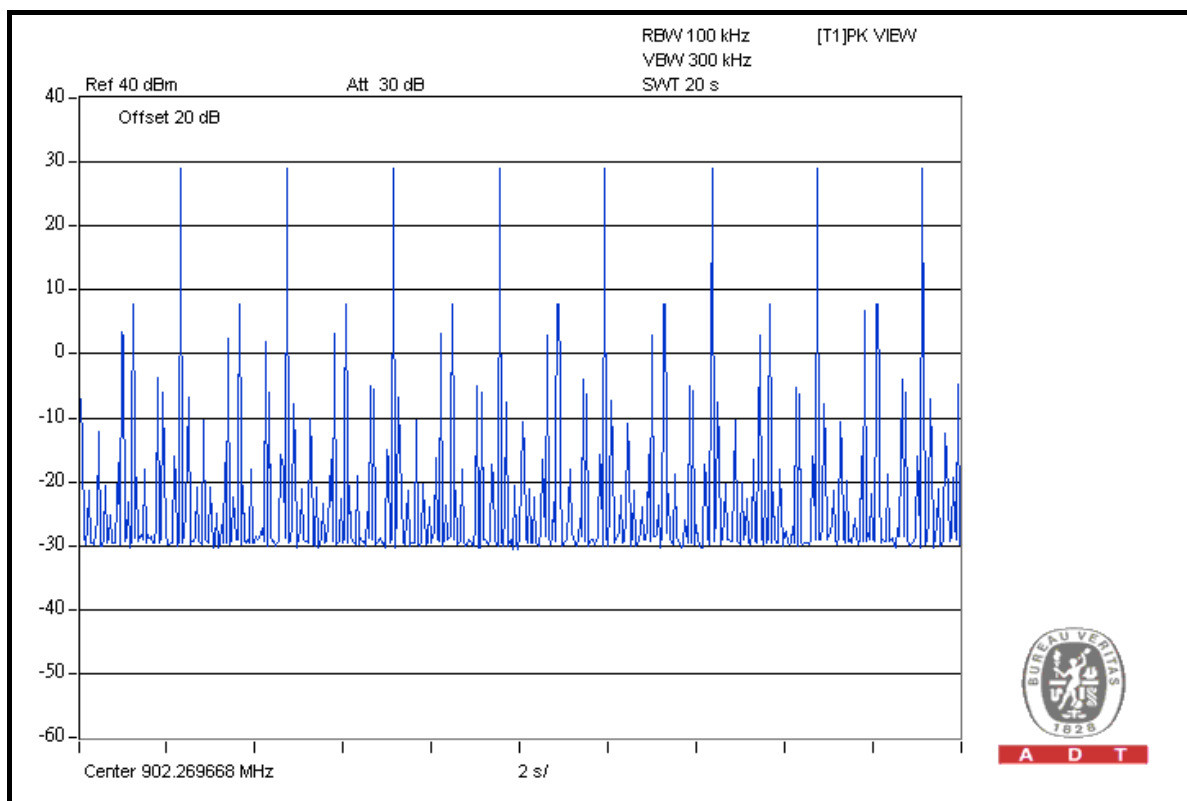
TEST MODE A

Length of transmission time (ms)	TX Burst of 20s period	Result	Limit
2.84	8	22.720ms / 20s	400ms / 20s

NOTE: Test plots of the transmitting time slot are shown on next page.



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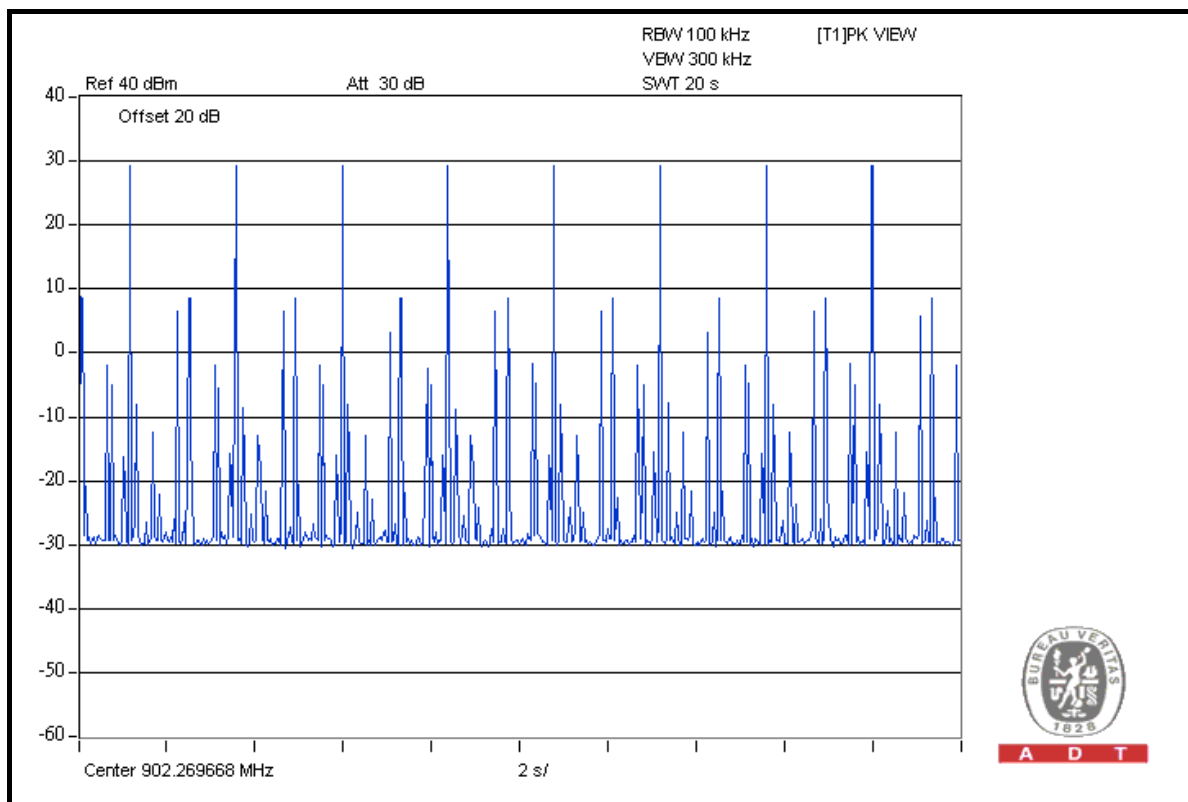
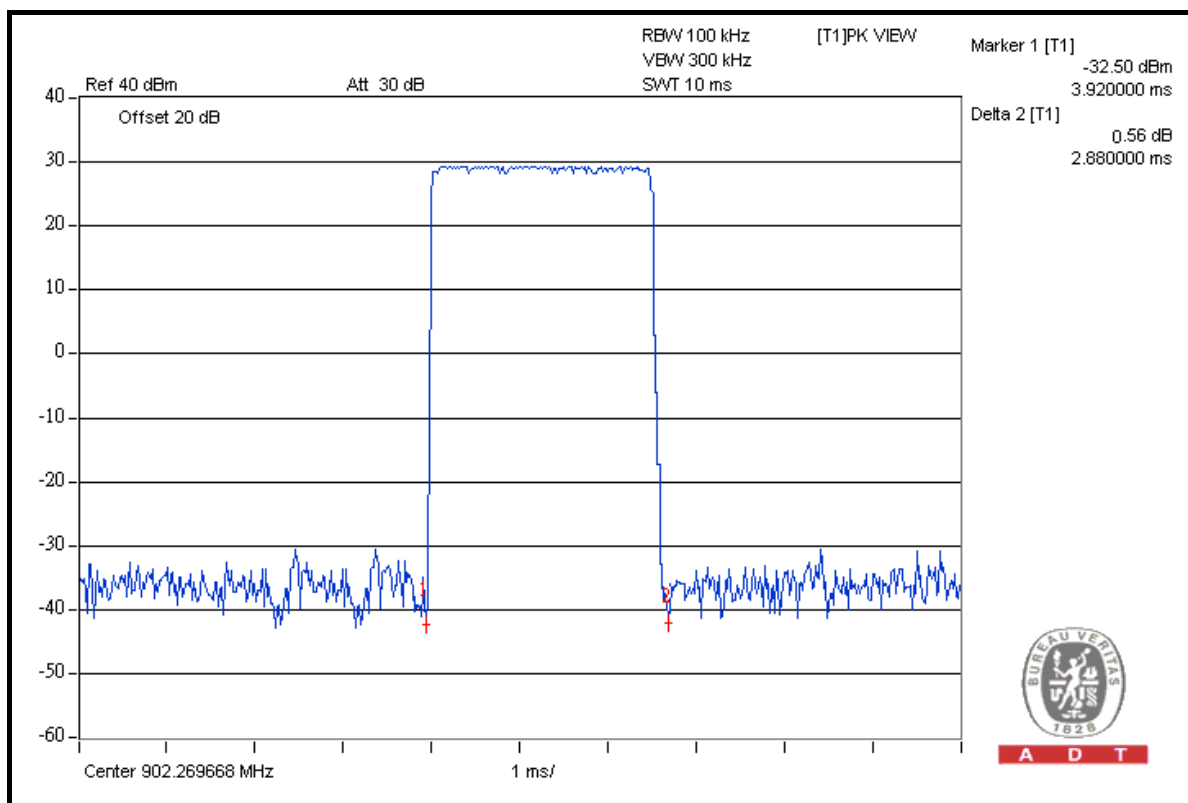
TEST MODE C

Length of transmission time (ms)	TX Burst of 20s period	Result	Limit
2.88	8	23.040ms / 20s	400ms / 20s

NOTE: Test plots of the transmitting time slot are shown on next page.



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4.5 CHANNEL BANDWIDTH

4.5.1 LIMITS OF CHANNEL BANDWIDTH

The 20 dB bandwidth of the hopping channel shall be less than 250 kHz.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	May 13, 2009	May 12, 2010

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.5.3 TEST PROCEDURE

- Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
- Repeat above procedures until all frequencies measured were complete.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation.

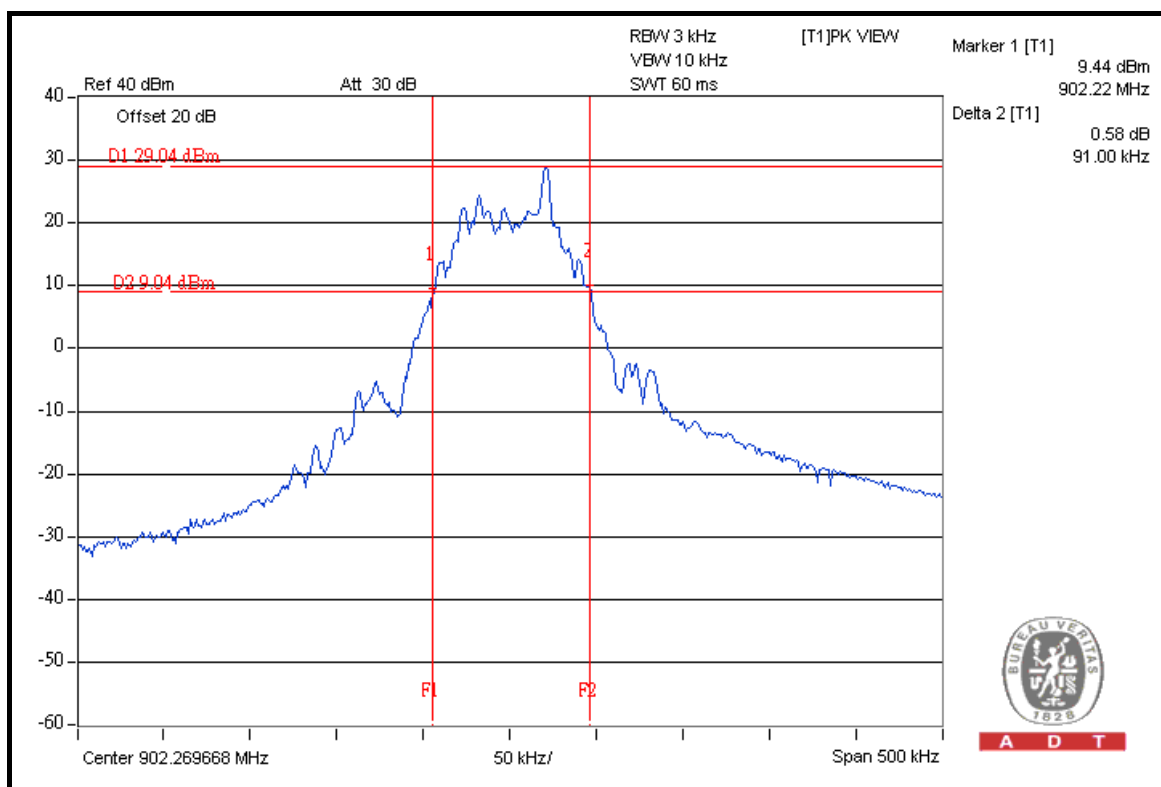
4.5.5 TEST SETUP

Same as 4.3.5.

TEST MODE B

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (kHz)	LIMIT (kHz)
1	902.269668	91.0	250
126	914.911644	90.0	250
252	927.654755	89.0	250

CH 1



4.6 HOPPING CHANNEL SEPARATION

4.6.1 LIMIT OF HOPPING CHANNEL SEPARATION

At least 25kHz or 20dB hopping channel bandwidth (whichever is greater).

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	May 13, 2009	May 12, 2010

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the MaxHold function record the separation of two adjacent channels.
4. Measure the frequency difference of these two adjacent channels by SA MARK function. And then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation.

4.6.5 TEST SETUP

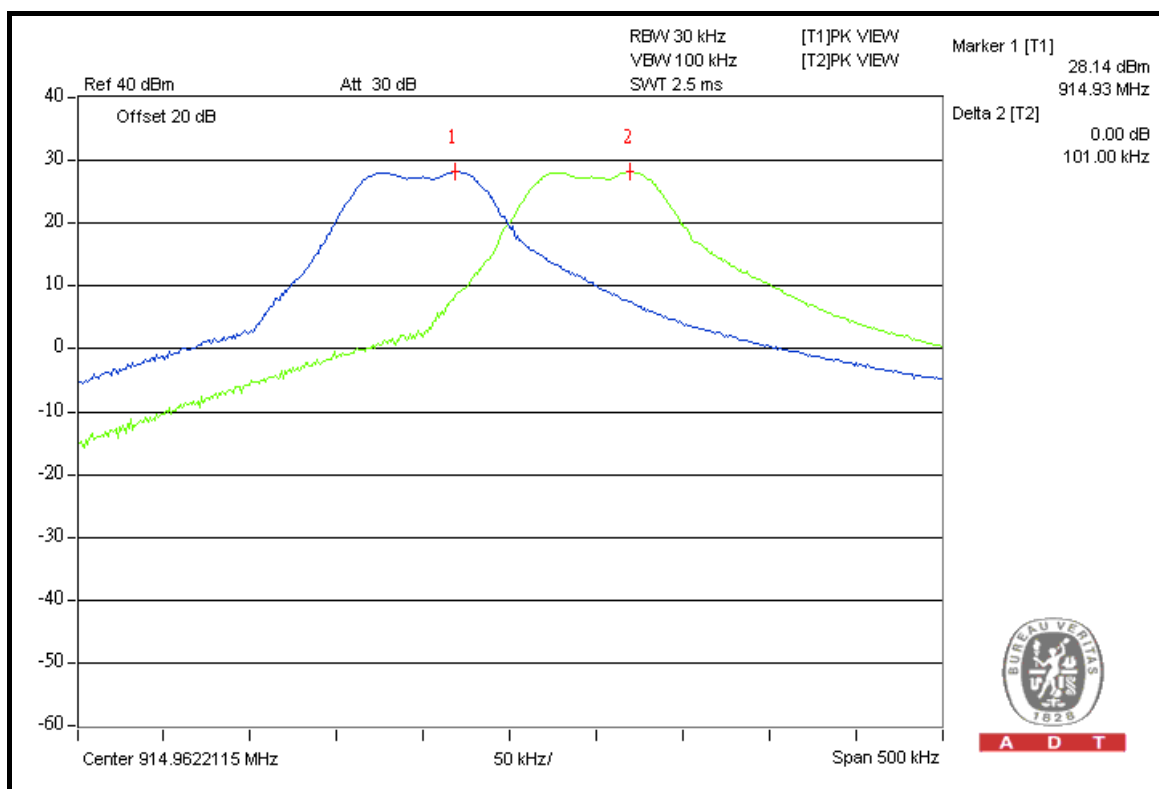
Same as 4.3.5

4.6.6 TEST RESULTS

TEST MODE A

CHANNEL	FREQUENCY (MHz)	ADJACENT CHANNEL SEPARATION (kHz)	MINIMUM LIMIT (kHz)	PASS / FAIL
1	902.269668	101.0	90.0	PASS
126	914.911644	101.0	91.0	PASS
252	927.654755	101.0	90.0	PASS

CH 126



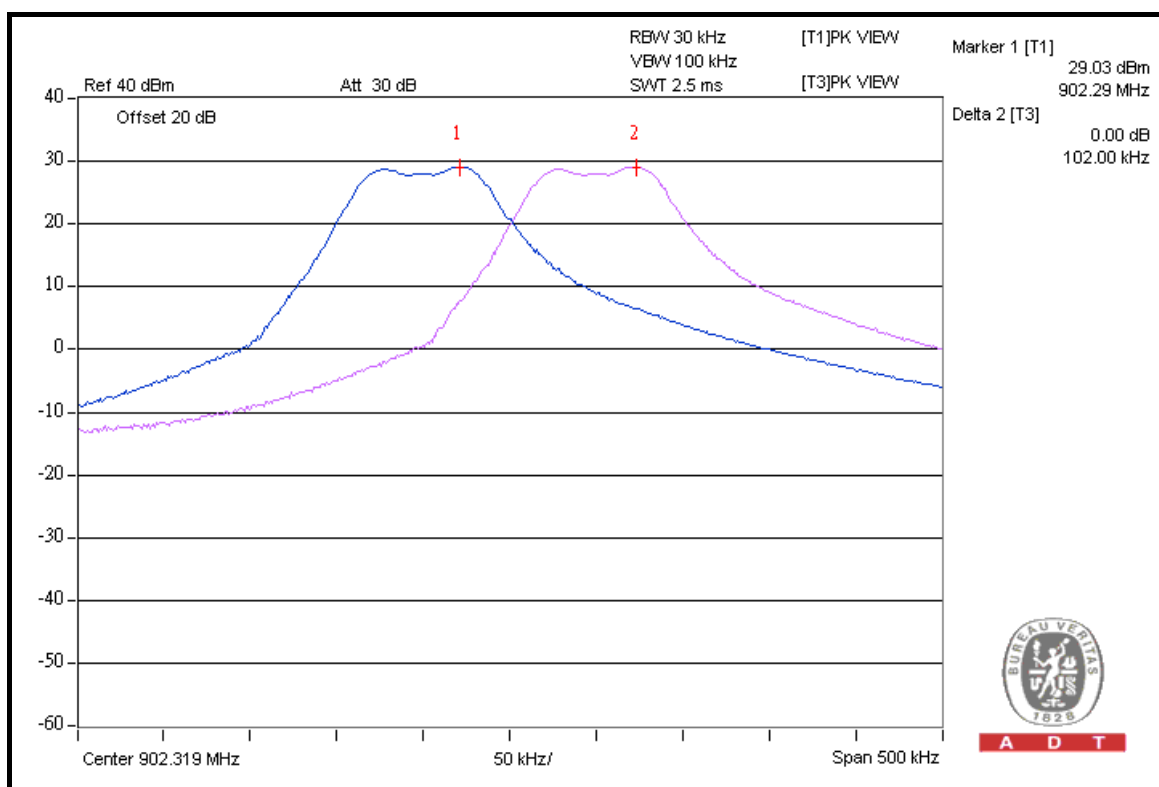


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TEST MODE C

CHANNEL	FREQUENCY (MHz)	ADJACENT CHANNEL SEPARATION (kHz)	MINIMUM LIMIT (kHz)	PASS / FAIL
1	902.269668	102.0	91.0	PASS
126	914.911644	102.0	90.0	PASS
252	927.654755	102.0	89.0	PASS

CH 1



4.7 MAXIMUM OUTPUT POWER

4.7.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

The Maximum Output Power Measurement is 30dBm.

4.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	May 13, 2009	May 12, 2010

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.7.3 TEST PROCEDURES

- Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- The center frequency of the spectrum analyzer is set to the fundamental frequency and using 1MHz RBW and 3 MHz VBW.
- Measure the captured power within the band and recording the plot.
- Repeat above procedures until all frequencies required were complete.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP

Same as 4.3.5.

4.7.6 EUT OPERATING CONDITION

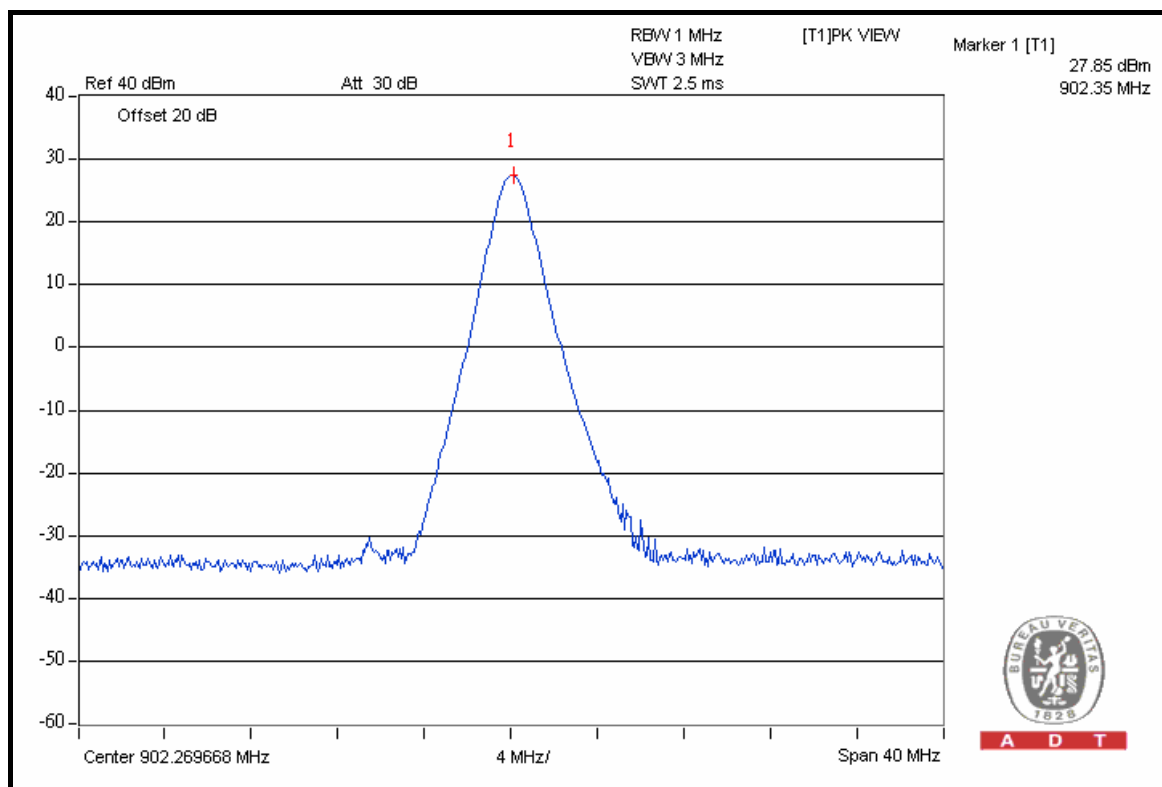
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.7.7 TEST RESULTS

TEST MODE A

CHANNEL	CHANNEL FREQUENCY (MHz)	POWER OUTPUT (mW)	POWER OUTPUT (dBm)	POWER LIMIT (dBm)	PASS/FAIL
1	902.269668	616.6	27.9	30	PASS
126	914.911644	602.6	27.8	30	PASS
252	927.654755	512.9	27.1	30	PASS

CH 1



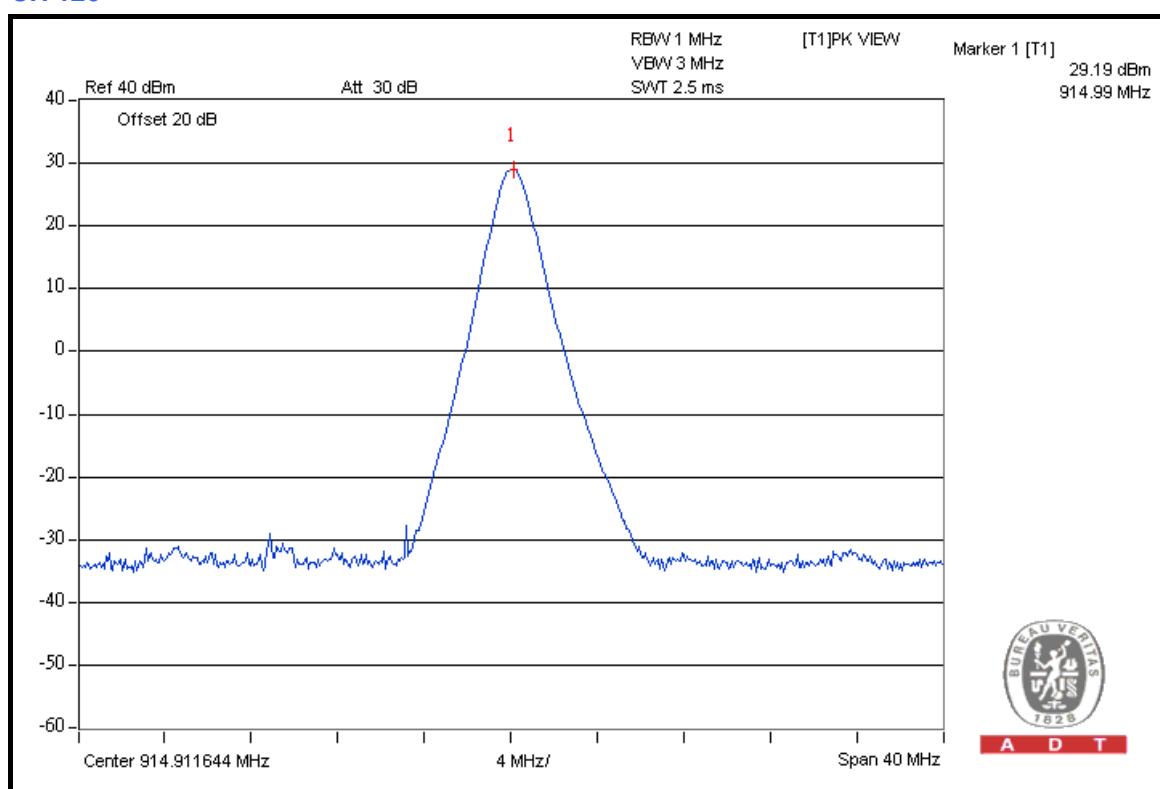


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TEST MODE C

CHANNEL	CHANNEL FREQUENCY (MHz)	POWER OUTPUT (mW)	POWER OUTPUT (dBm)	POWER LIMIT (dBm)	PASS/FAIL
1	902.269668	812.8	29.1	30	PASS
126	914.911644	831.8	29.2	30	PASS
252	927.654755	776.3	28.9	30	PASS

CH 126



4.8 BAND EDGES MEASUREMENT

4.8.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100KHz RBW).

4.8.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	May 13, 2009	May 12, 2010

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.8.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100 / 300 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

4.8.4 DEVIATION FROM TEST STANDARD

No deviation.

4.8.5 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit and receive data at lowest and highest channel frequencies individually.

4.8.6 TEST RESULTS

The spectrum plots are attached on the following images. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

TEST MODE A

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH OUT OF BAND (dBuV/m)	LIMIT (dBuV/m)
902.269668 (PK)	133.4	54.55	78.85	113.40
902.269668 (AV)	-	-	47.95	82.5

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH OUT OF BAND (dBuV/m)	LIMIT (dBuV/m)
927.654755 (PK)	132.4	49.73	82.67	112.4
927.654755 (AV)	-	-	51.77	81.5

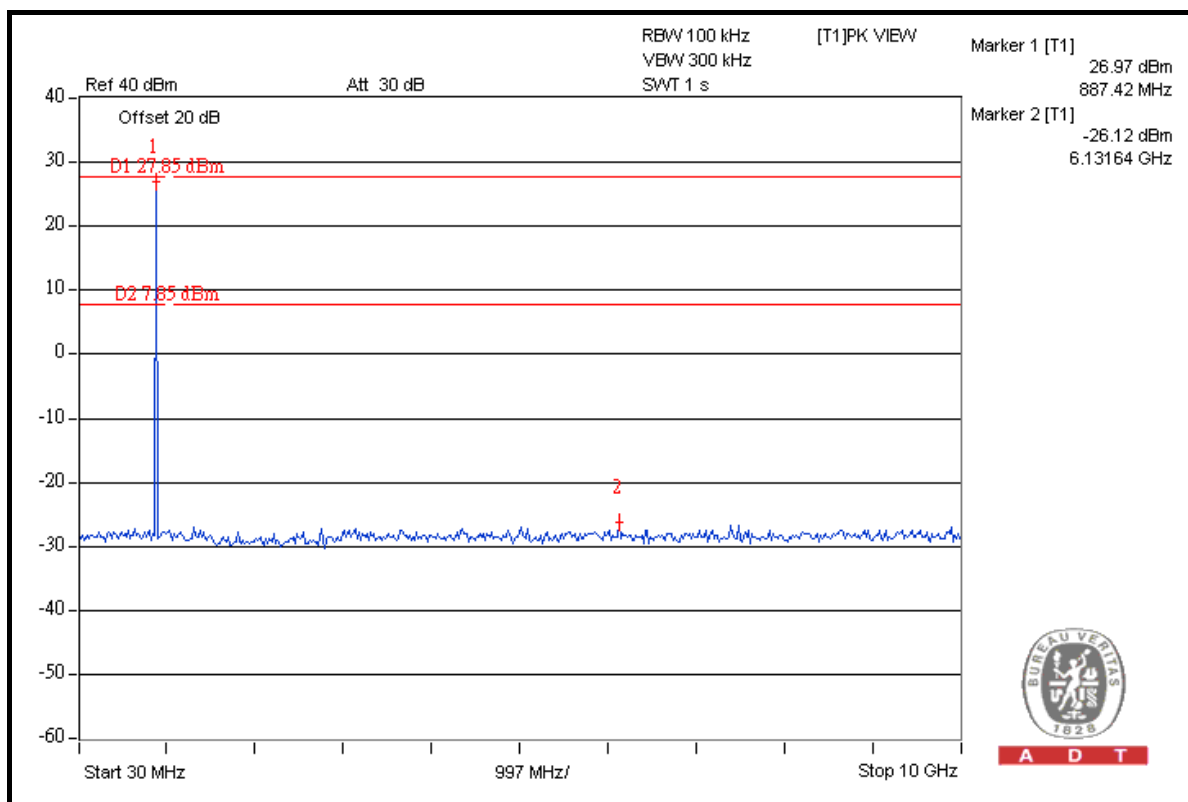
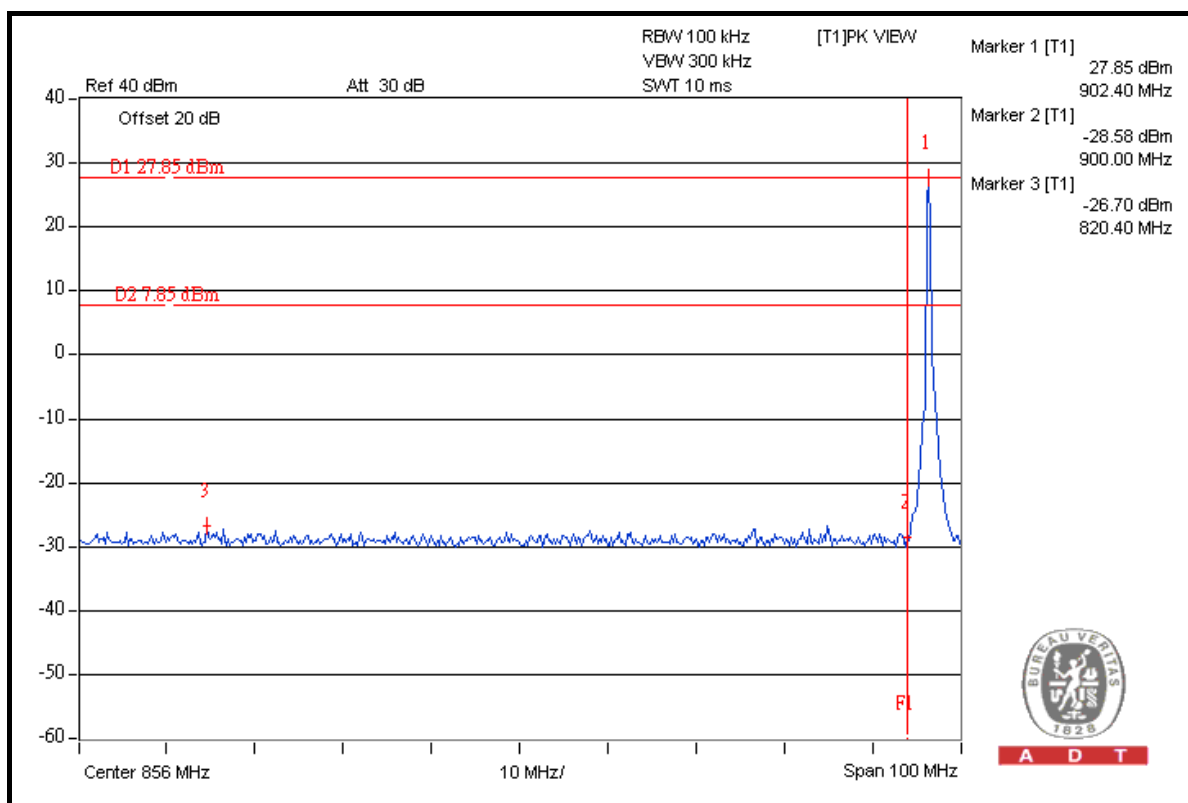
NOTE:

1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 2 pages.
2. Maximum field strength out of band (PK value) = Fundamental emission (PK value) – Delta.
3. Average value = Peak value + 20 Log (duty cycle) = Peak value – 30.9dB.
4. The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

$$20 \log (\text{Duty cycle}) = 20 \log (2.84 \text{ ms} / 100 \text{ ms}) = -30.9 \text{ dB}$$

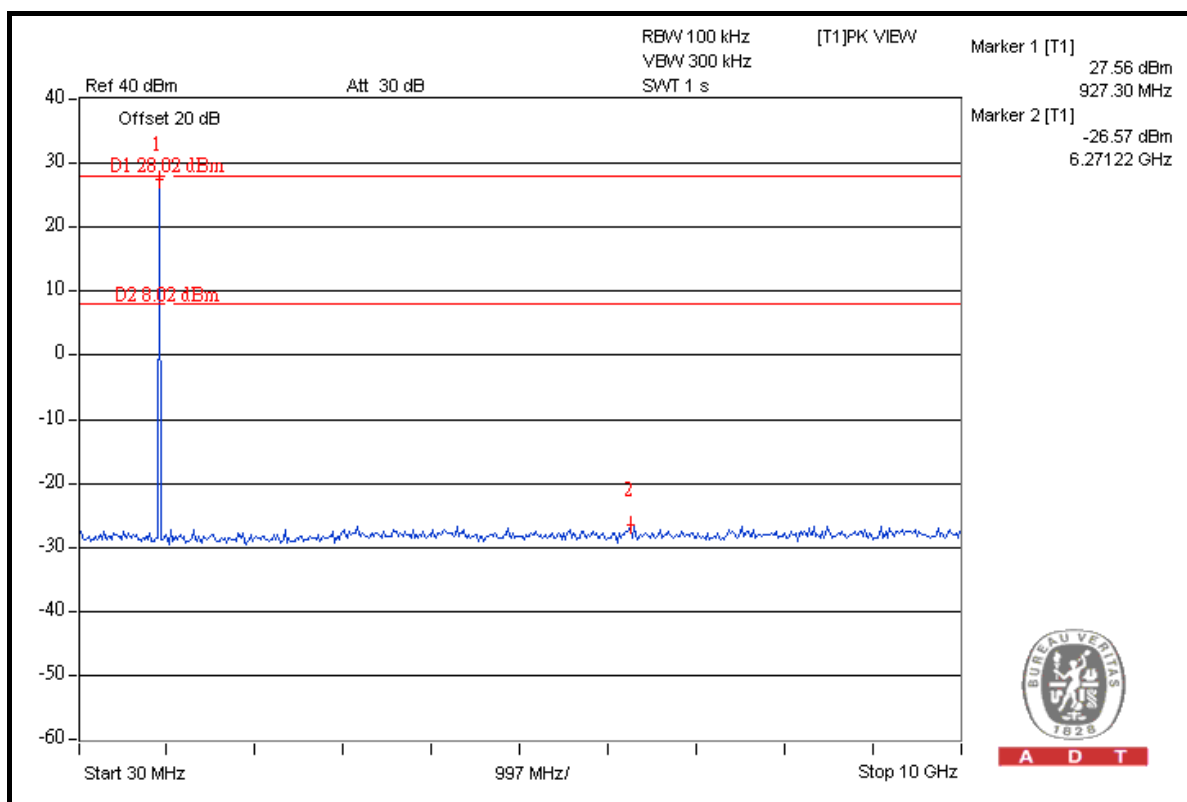
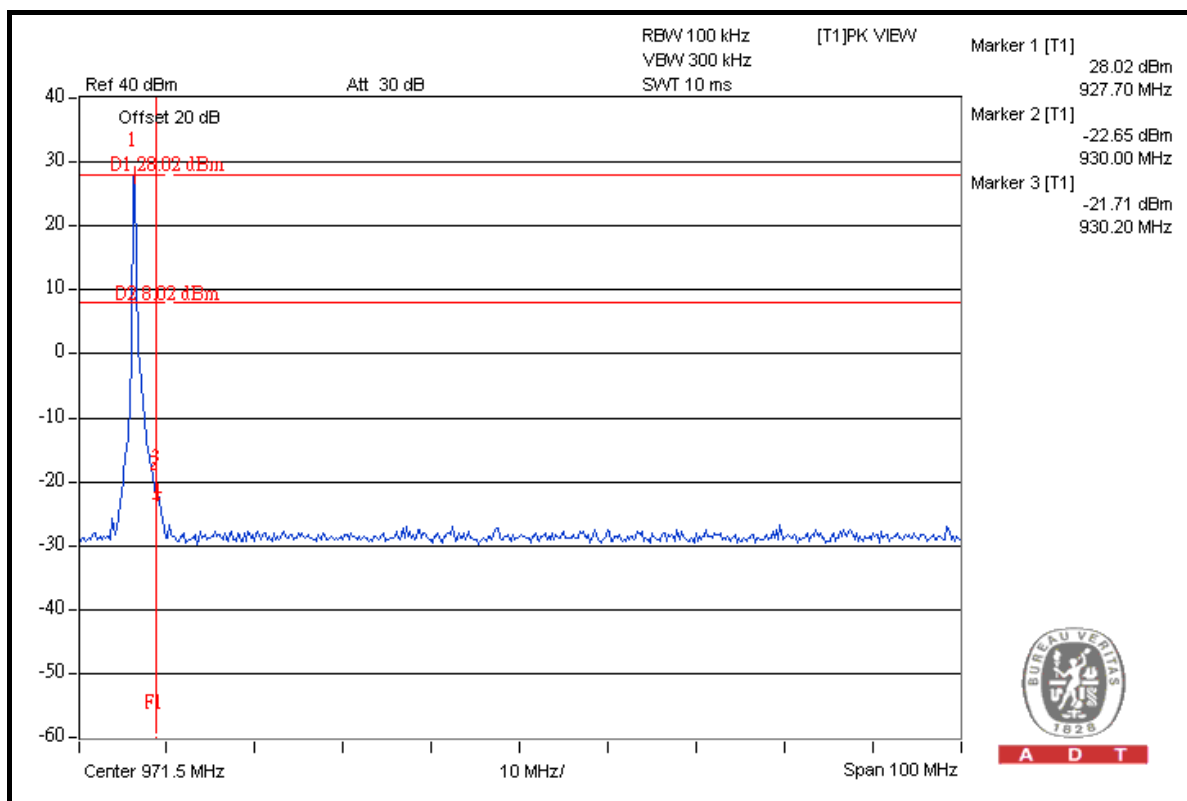


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TEST MODE C

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH OUT OF BAND (dBuV/m)	LIMIT (dBuV/m)
902.269668 (PK)	132.1	57.17	74.93	112.1
902.269668 (AV)	-	-	44.13	81.3

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH OUT OF BAND (dBuV/m)	LIMIT (dBuV/m)
927.654755 (PK)	131.9	56.74	75.16	111.9
927.654755 (AV)	-	-	44.36	81.1

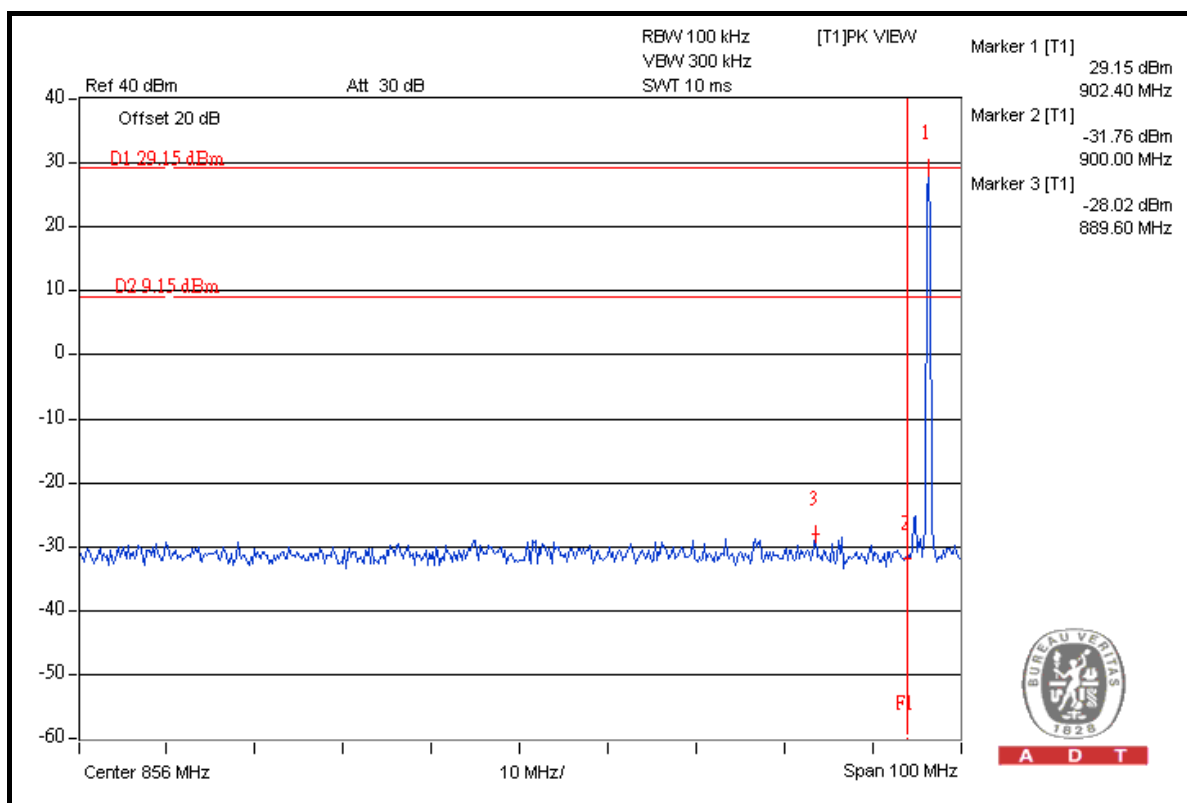
NOTE:

- Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 2 pages.
- Maximum field strength out of band (PK value) = Fundamental emission (PK value) – Delta.
- Average value = Peak value + 20 Log (duty cycle) = Peak value – 30.8dB.
- The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula:

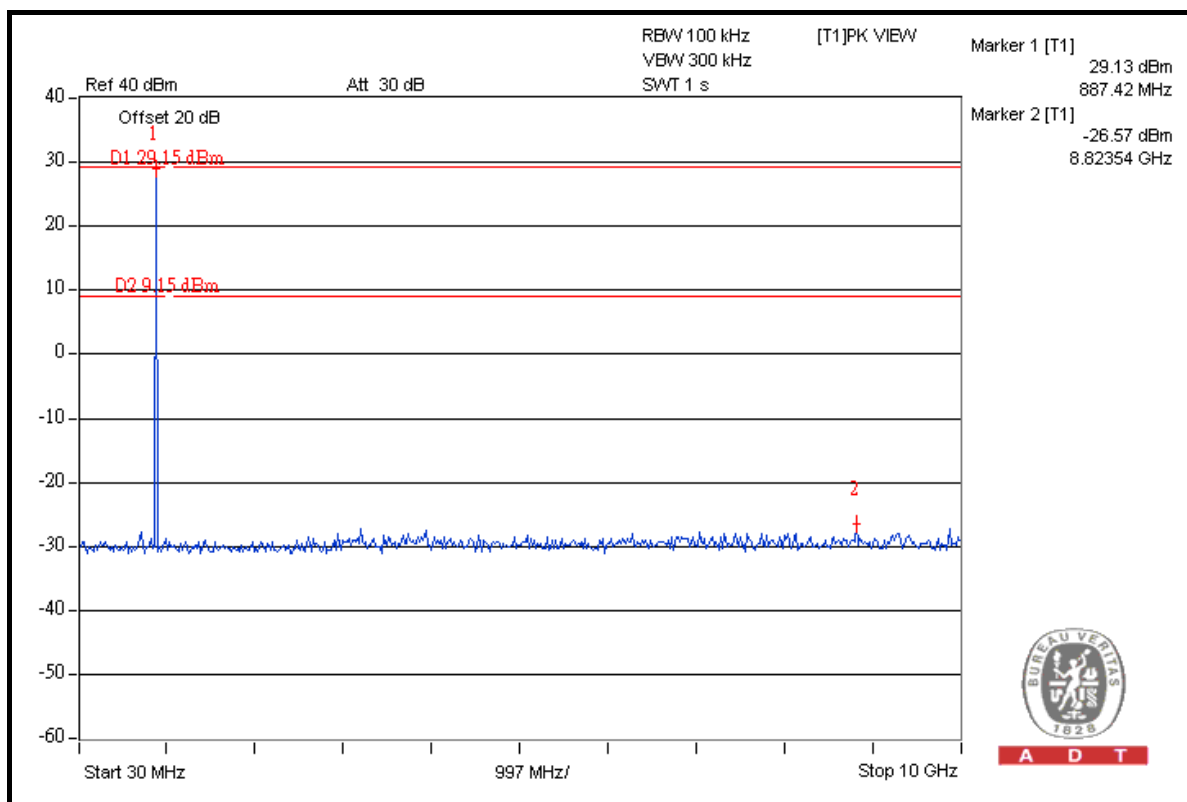
$$20 \log (\text{Duty cycle}) = 20 \log (2.88 \text{ ms} / 100 \text{ ms}) = -30.8 \text{ dB}$$



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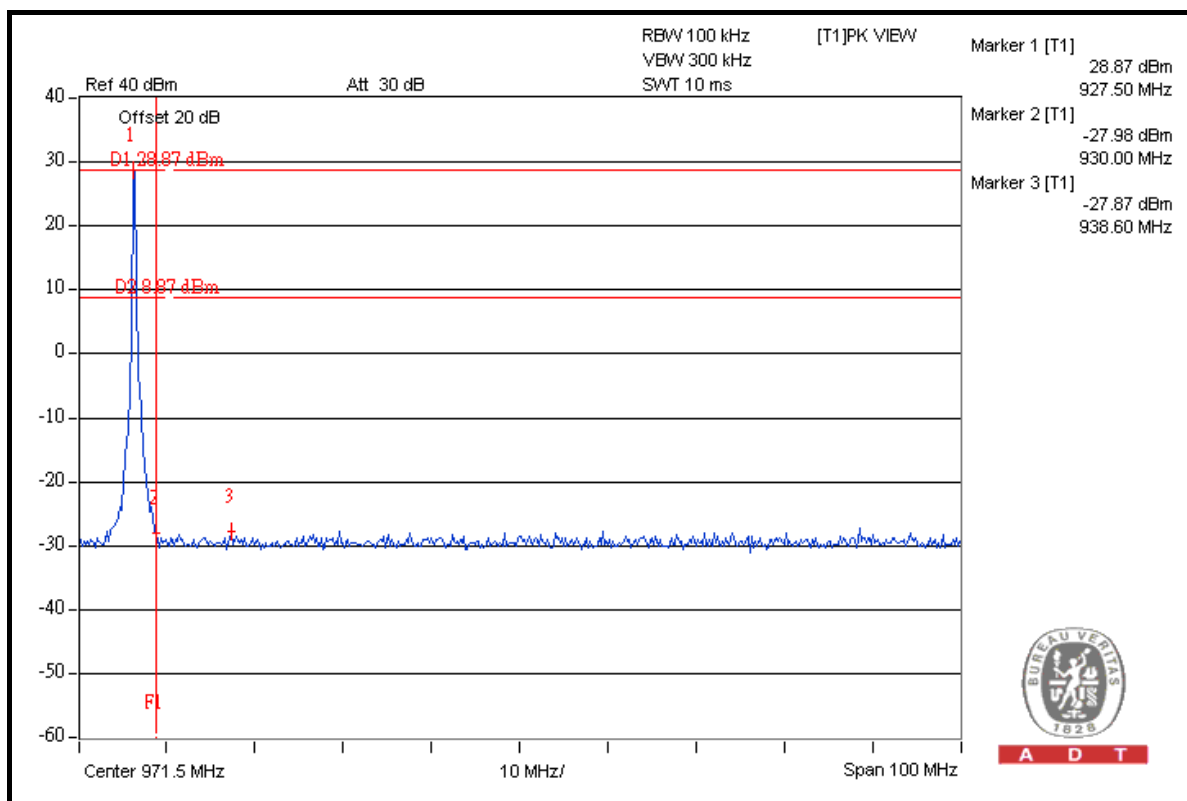
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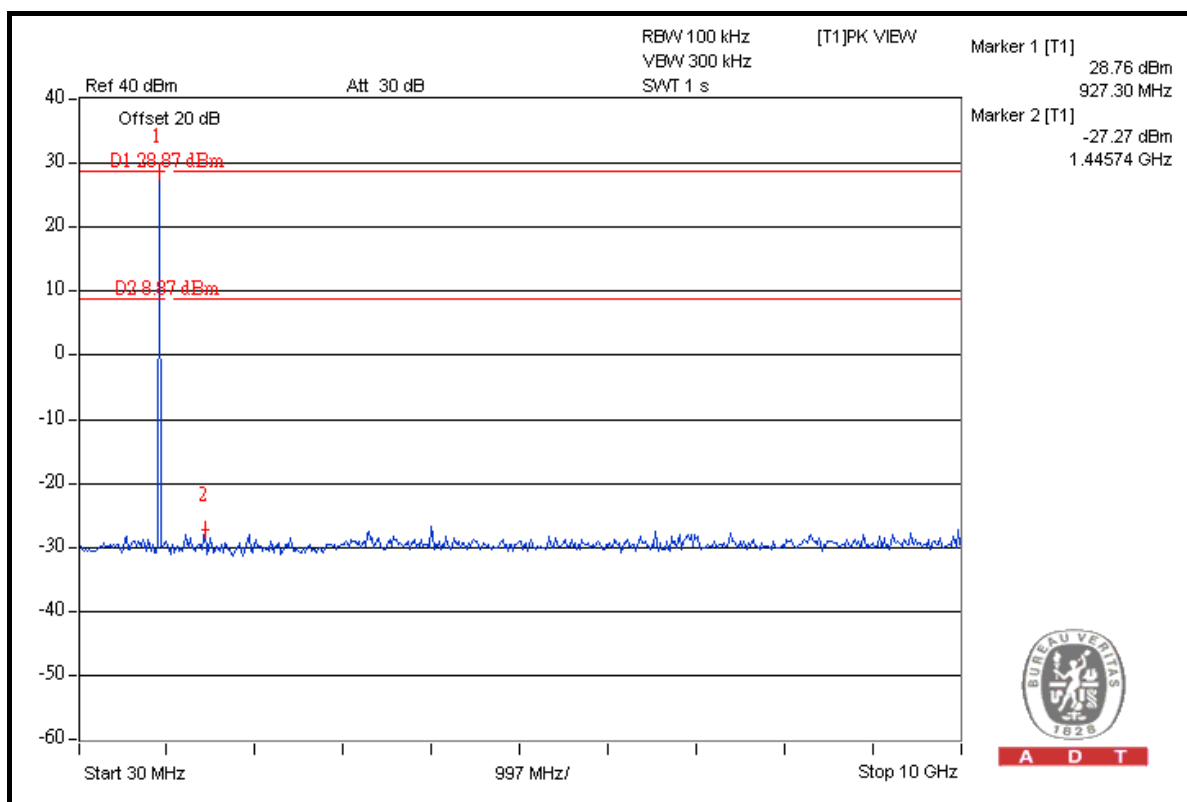
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5. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.



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7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

--- END ---