FCC Test Report

Report No: FCS202406036W02

Issued for

Applicant:	Xtuga E-COMMERCE CORP.
Address:	949 Constance Ln Unit E Sycamore IL 60178
Product Name:	Wireless monitoring system
Brand Name:	XTUGA
Model Name:	SEM200
Series Model:	SEM300,SEM400,SEM500,SEM600,SEM700,SEM800 SEM900
FCC ID:	2BDIS-SEM200

Issued By: Flux Compliance Service Laboratory
Add: Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan
Tel: 769-27280901 Fax:769-27280901 http://www.fcs-lab.com

TEST RESULT CERTIFICATION

Applicant's Name..... :	Xtuga E-COMMERCE CORP.
Address..... :	949 Constance Ln Unit E Sycamore IL 60178
Manufacture's Name..... :	Enping Dekas Electroacoustic Equipment Co., Ltd
Address..... :	Card 1, 4F, Changchun Industrial Park, No. C10, Municipal Foreign-invested Industrial Zone, Enping

Product Description

Product Name..... :	Wireless monitoring system
Brand Name .....:	XTUGA
Model Name..... :	SEM200
Series Model.....:	SEM300,SEM400,SEM500,SEM600,SEM700,SEM800SEM900
Test Standards.....:	FCC Rules and Regulations Part 15 Subpart C section 15.236
Test Procedure.....:	ANSI C63.10:2013

This device described above has been tested FCS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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Date of Test.....:

Date (s) of performance of tests. :	June 12, 2024 ~ June 21, 2024
Date of Issue.....:	June 21, 2024
Test Result..... :	Pass

Tested by : Scott Shen

(Scott Shen)

Reviewed by : Duke Qian

(Duke Qian)

Approved by : Jack Wang

(Jack Wang)

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Revision History

Rev.	Issue Date	Effect Page	Contents
00	June 21, 2024	N/A	Initial Issue

1. SUMMARY OF TEST RESULTS

FCC Part 15 Subpart C section 15.236			
Standard Section	Test Item	Judgment	Remark
FCC Part 15.236(d)	Maximum Radiated Power	PASS	--
FCC Part 15.236(f)(2)	Occupied Bandwidth	PASS	--
FCC Part 15.236(g)	Necessary bandwidth	PASS	--
FCC Part 15.236(f)(3)	Frequency stability	PASS	--
FCC Part 15.236(g)	Emission within the band and outside this band	PASS	--
FCC Part 207(a)	Conducted Emission	PASS	--

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

(2) All tests are according to ANSI C63.10:2013

1.1 TEST FACTORY

Company Name:	Flux Compliance Service Laboratory
Address:	Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan
Telephone:	+86-769-27280901
Fax:	+86-769-27280901
FCC Test Firm Registration Number: 514908 Designation number: CN0127 A2LA accreditation number：5545.01	

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ±U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	RF output power, conducted	±0.71dB
2	Unwanted Emissions, conducted	±2.98 dB
3	Conducted Emission (9KHz-150KHz)	±4.13 dB
4	Conducted Emission (150KHz-30MHz)	±4.74 dB
5	All emissions,radiated(<1G) 30MHz-1000MHz	±3.1 dB
6	All emissions,radiated(<1G) 30MHz-1000MHz	±3.2 dB
7	All emissions,radiated (1GHz -18GHz)	±3.66 dB
8	All emissions,radiated (18GHz -40GHz)	±4.31 dB
9	Occupied bandwidth	±0.3 dB
10	Power Spectral Density	±0.48 dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Wireless monitoring system
Brand Name	XTUGA
Model Name	SEM200
Series Model	SEM300,SEM400,SEM500,SEM600,SEM700,SEM800 SEM900
Model Difference	We (Xtuga E-COMMERCE CORP.) hereby state that all the models are electrical identical including the same software parameter and hardware design (i.e., circuit design, PCB Layout, RF module/circuit, antenna type(s) and antenna location, components on PCB, etc.,), same mechanical structure and design (including product enclosure, materials, etc.,), the only difference is the model name and appearance color.
Channel List	Please refer to the Note 2.
Operation frequency	550.0MHz-599.75MHz
Modulation Type	pi/4 DQPSK
Antenna Type	External antenna
Antenna Gain (dBi)	2.5
Power Supply	INPUT:AC100-240V 50/60H OUTPUT:12⎓1A
Battery	N/A
Hardware version number	V1.0
Software version number	V1.0
Connecting I/O Port(s)	Please refer to the User's Manual

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2. **Channel List**

Channel			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	550.0		
02	574.75		
03	599.75		

Ant.	Atnenna Brand	Antenna Model Name	Antenna Type	Connector	Gain (dBi)	EIRP(dBm)	NOTE
1	N/A	N/A	External antenna	N/A	2.5	7.73	Antenna

2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test software:FCC tools

The test softeware was used to control EUT work in continuous TX mode, and select test channel, Wireless mode as below table, the following operating modes were applied for the related test items. All test modes were tested, only the result of the worst case was recorded in the report.

Tested mode, channel , information		
Mode	Channel	Frequency (MHz)
Channel	CH 01	550.0
	CH 02	574.75
	CH 03	599.75

2.3 DESCRIPTION OF NECESSARY ACCESSORIES AND 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.

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
(3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

2.4 EQUIPMENTS LIST

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESRP 3	FCS-E001	2023.08.29	2024.08.28
Signal Analyzer	R&S	FSV40-N	FCS-E012	2023.08.29	2024.08.28
Active loop Antenna	ZHINAN	ZN30900C	FCS-E013	2023.08.29	2024.08.28
Bilog Antenna	SCHWARZBECK	VULB 9168	FCS-E002	2023.08.29	2024.08.28
Horn Antenna	SCHWARZBECK	BBHA 9120D	FCS-E003	2023.08.29	2024.08.28
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	FCS-E018	2023.08.29	2024.08.28
Pre-Amplifier(0.1M-3G Hz)	EMCI	EM330N	FCS-E004	2023.08.29	2024.08.28
Pre-Amplifier (1G-18GHz)	N/A	TSAMP-0518SE	FCS-E014	2023.08.29	2024.08.28
Pre-Amplifier (18G-40GHz)	TERA-MW	TRLA-0400	FCS-E019	2023.08.29	2024.08.28
Temperature & Humidity	HTC-1	victor	FCS-E005	2023.08.29	2024.08.28
Signal generator	Agilent	E4421B	FCS-E025	2023.08.29	2024.08.28

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESPI	FCS-E020	2023.08.29	2024.08.28
LISN	R&S	ENV216	FCS-E007	2023.08.29	2024.08.28
LISN	ETS	3810/2NM	FCS-E009	2023.08.29	2024.08.28
Temperature & Humidity	HTC-1	victor	FCS-E008	2023.08.29	2024.08.28

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
Spectrum Analyzer	Keysight	N9020A	FCS-E015	2023.08.29	2024.08.28
Spectrum Analyzer	Agilent	E4447A	MY50180039	2023.08.29	2024.08.28
Spectrum Analyzer	R&S	FSV-40	101499	2023.08.29	2024.08.28
Audio Analyzer	R&S	UPL	FCS-E39	2023.08.29	2024.08.28

3 MAXIMUM RADIATED POWER

3.1 LIMIT

Refer to FCC 15.236(d)
In the bands allocated and assigned for broadcast television and in the 600 MHz service band: 50 mW EIRP

3.2 TEST PROCEDURE

A. Connect each EUT's antenna output to power sensor by RF cable and attenuator

3.3 TEST SETUP

3.4 TEST RESULTS

Test mode	Channel	Frequency (MHz)	Cable Loss(dB)	Peak Output Power (dBm)	Atnenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Verdict
Channel A	CH 01	550.0	0.5	5.23	2.5	7.73	16.99	PASS
	CH 02	574.75	0.5	4.68	2.5	7.17		
	CH 03	599.75	0.5	4.57	2.5	7.07		

4. OCCUPIED BANDWIDTH

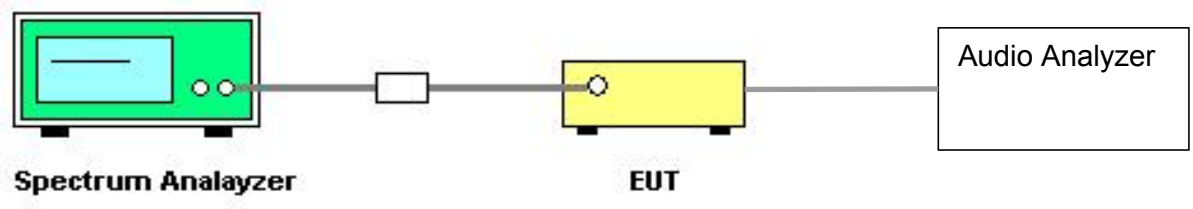
4.1 LIMIT

One or more adjacent 25KHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200 kHz

4.2 TEST PROCEDURE

Parameter	Setting
Detector	Peak/AV
Sweep time	Auto
Resolution bandwidth	1 % to 5 % of the occupied bandwidth
VBW	1KHz
RBW	3KHz
Span:	2 x emission bandwidth
Trace mode:	Max. hold
Analyzer function:	99% power occupied bandwidth function
EUT:	Modulated signal with max(FM,2.5kHz tone). frequency deviation

4.3 TEST SETUP

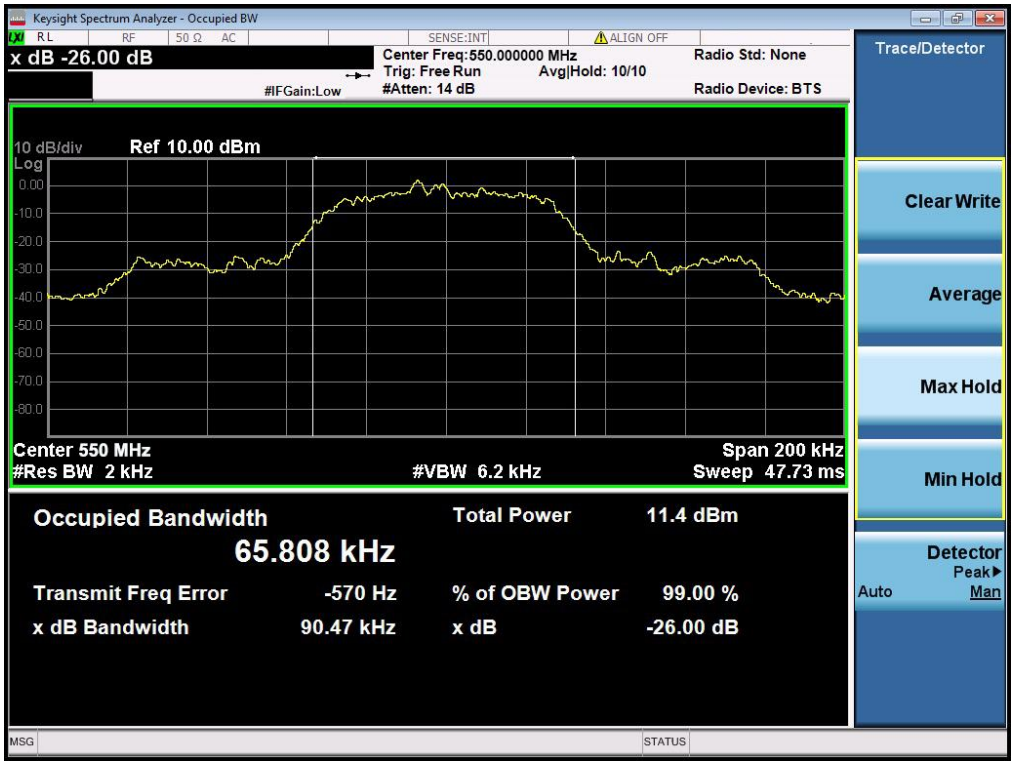


4.4 TEST RESULTS

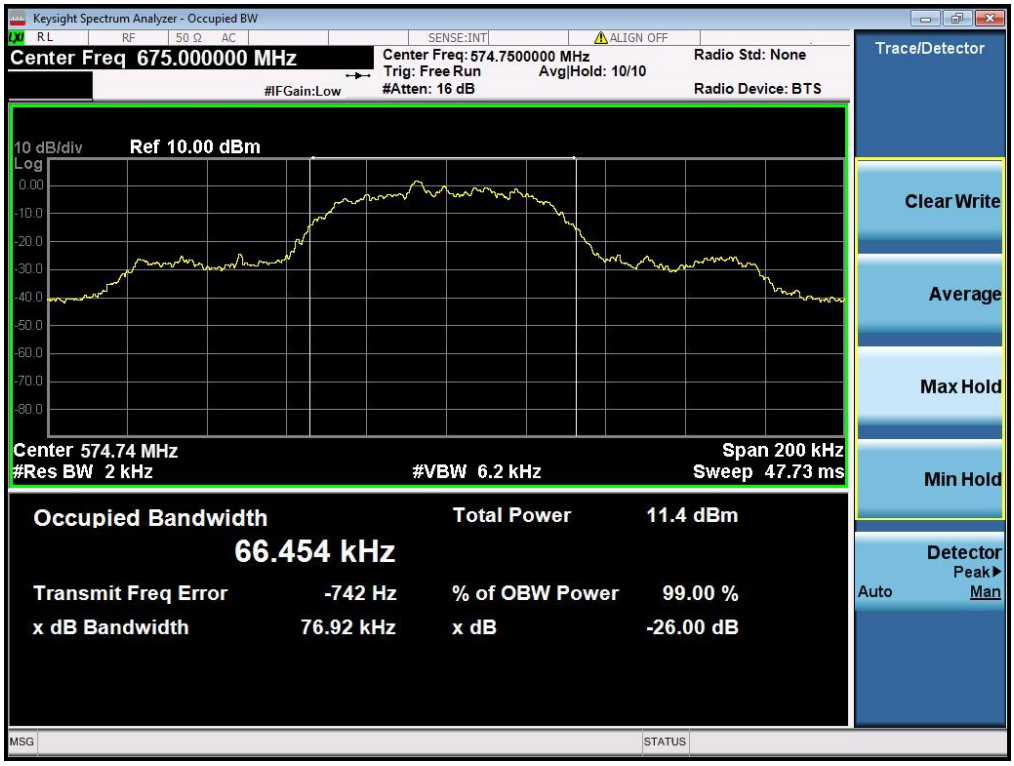
Test mode	Channel	Frequency (MHz)	occupied bandwidth(KHz)	Limt(KHz)	Verdict
Channel A	CH 01	550.0	65.808	200KHz	PASS
	CH 10	574.75	66.454		
	CH 19	599.75	65.514		

ANT 1

Low



Middle

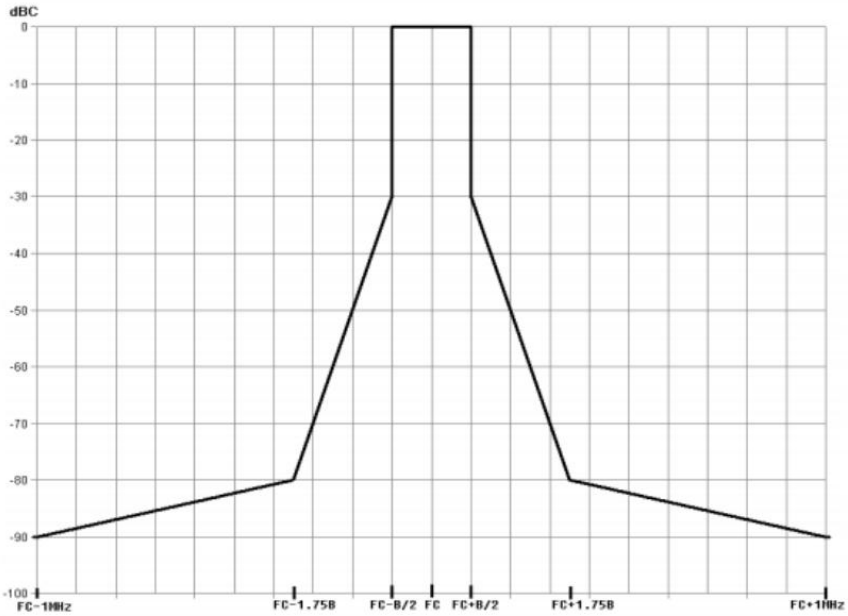


High

Keysight Spectrum Analyzer - Occupied BW
VBW 6.2000 kHz
Center Freq: 599.750000 MHz
Trig: Free Run
Avg|Hold: 10/10
#Atten: 14 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
10 dB/div
Ref 10.00 dBm
Center 599.75 MHz
#Res BW 2 kHz
#VBW 6.2 kHz
Span 200 kHz
Sweep 47.73 ms
Occupied Bandwidth
65.514 kHz
Total Power 10.9 dBm
Transmit Freq Error -547 Hz
% of OBW Power 99.00 %
x dB Bandwidth 89.11 kHz
x dB -26.00 dB
Trace/Detector
Clear Write
Average
Max Hold
Min Hold
Detector
Peak
Auto
Man

5. NECESSARY BANDWITH

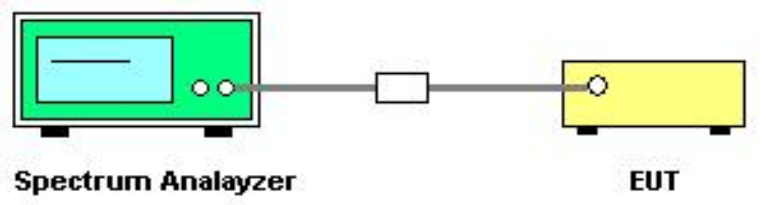
5.1 LIMIT



5.2 TEST PROCEDURE

EN300422-1 V1.4.2 Clause 8.3.

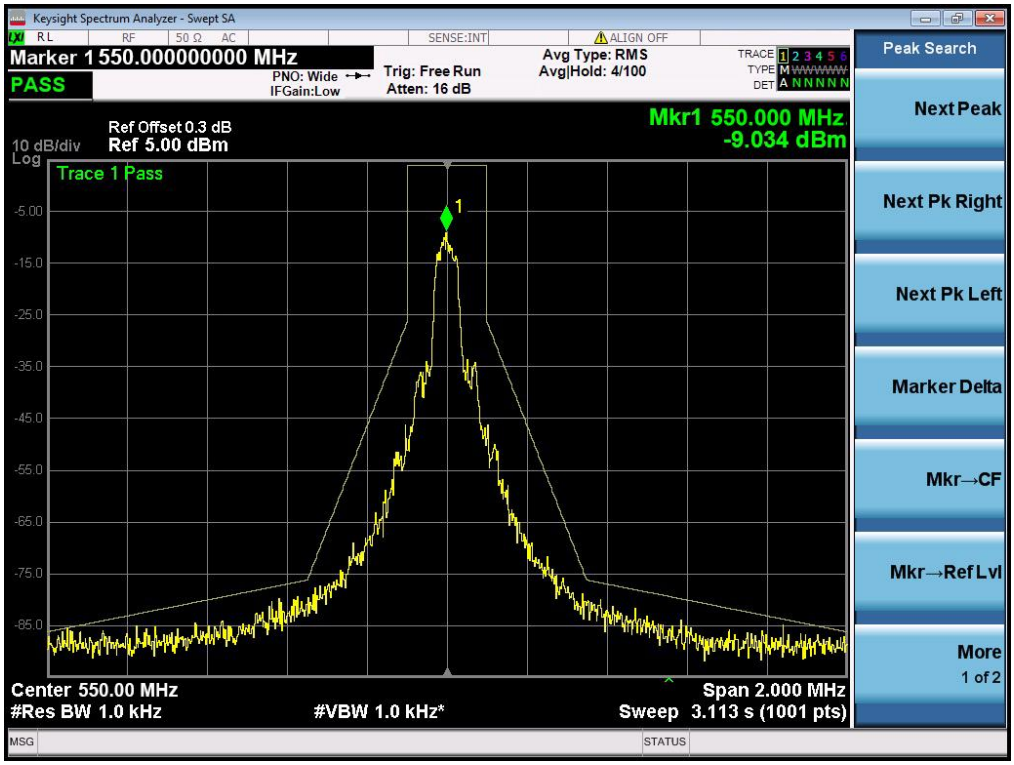
5.3 TEST SETUP



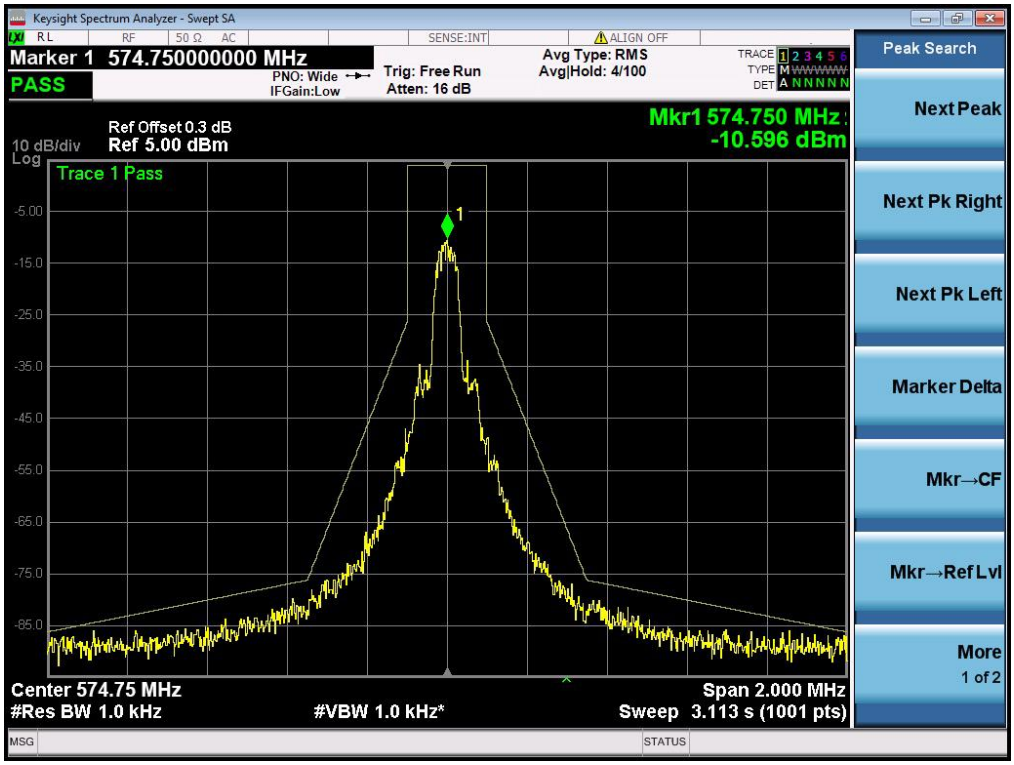
5.4 TEST RESULT

ANT 1

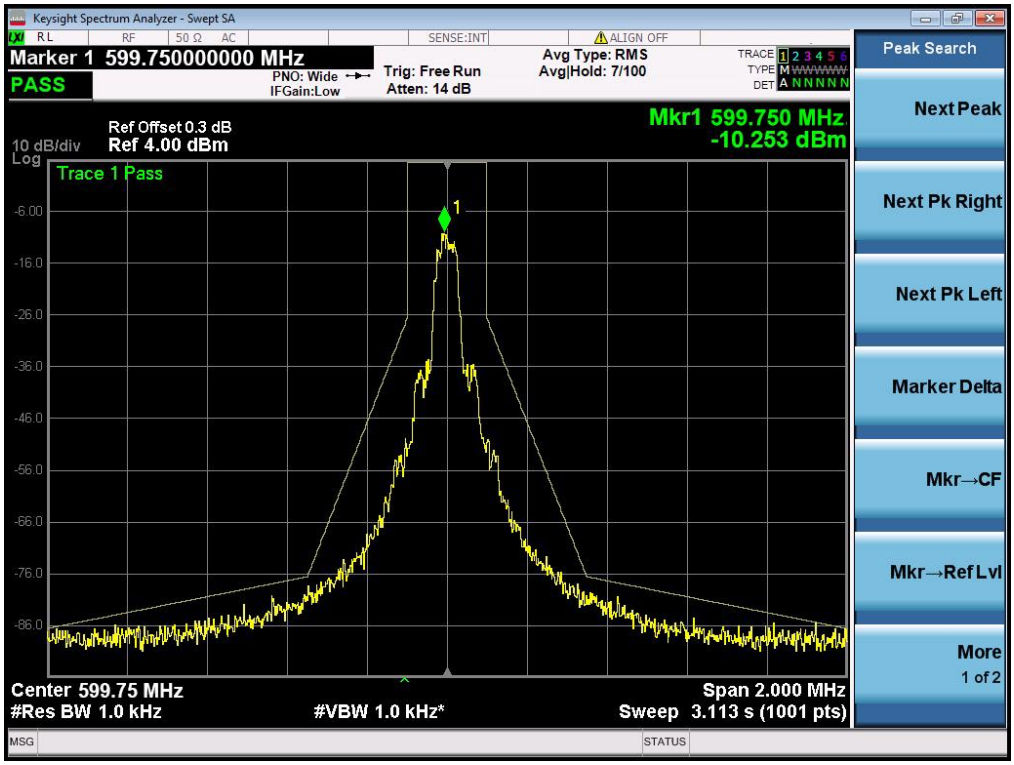
Low



Middle



High


Keysight Spectrum Analyzer - Swept SA
Marker 1 599.750000000 MHz
PASS
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 14 dB
Avg Type: RMS
Avg|Hold: 7/100
Ref Offset 0.3 dB
10 dB/div
Log
Ref 4.00 dBm
Mkr1 599.750 MHz
-10.253 dBm
Trace 1 Pass
Center 599.75 MHz
#Res BW 1.0 kHz
#VBW 1.0 kHz*
Span 2.000 MHz
Sweep 3.113 s (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

6. TRANSMITTER UNWANTED EMISSIONS

6.1 LIMIT

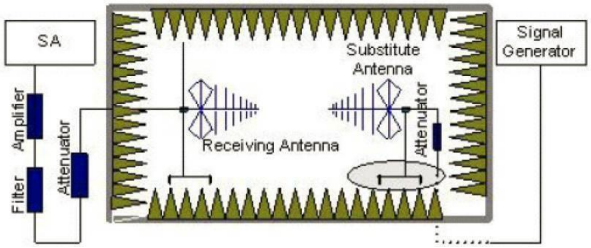
Spurious emissions are emissions outside the frequency range(s) of the equipment. The power of the spurious emissions shall not exceed the limits of table as below:

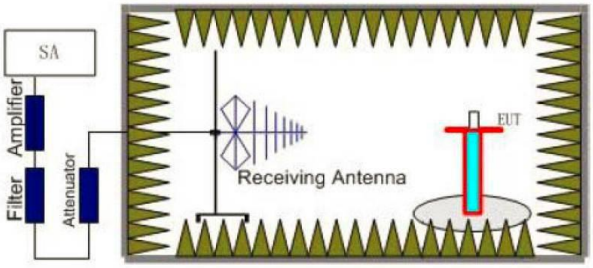
State	Frequency		
	47MHz to 74MHz, 87.5MHz to 137MHz 174MHz to 230MHz, 470MHz to 862MHz	Other Frequencies below 1000MHz	Frequencies above 1000MHz
Operation	4nW	250nW	1uW
Standby	2nW	2nW	20nW

6.2 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer through an attenuator. Set spectrum analyzer start 30MHz to 6000MHz with 100 KHz RBW and 300 KHz VBW
2 Please refer to ETSI EN 300 422-1 V1.4.2 (2011-08) clause 6.1 for the test conditions.
3 Please refer to ETSI EN 300 422-1 V1.4.2 (2011-08) clause 8.4.2 for the measurement method.

6.3 TEST SETUP

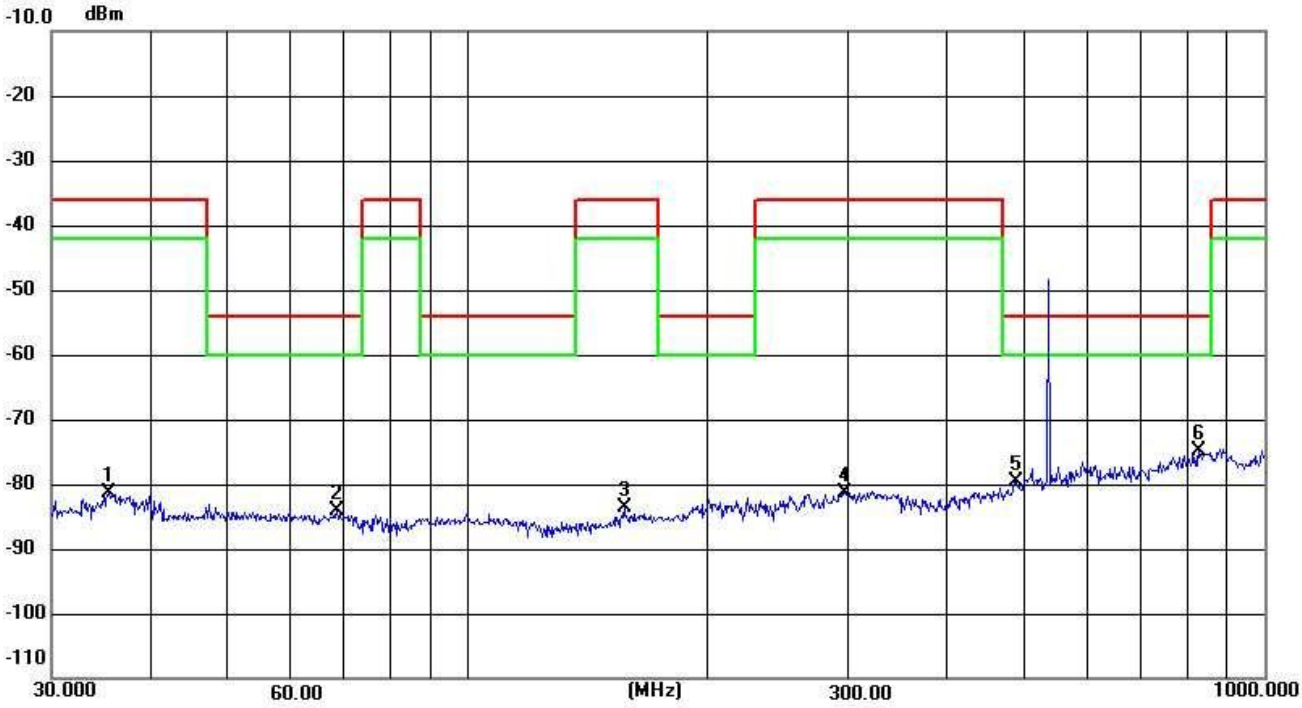




6.4 TEST RESULTS

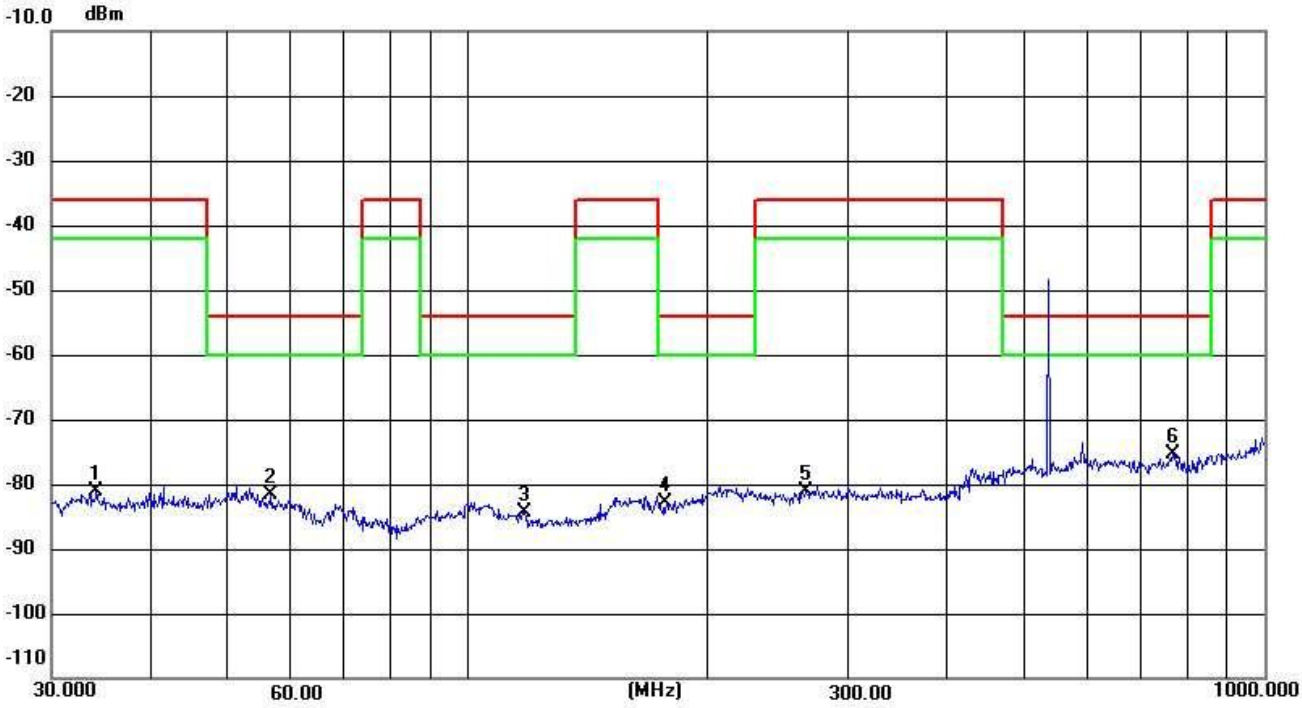
CHNNEL–LOW CH–30MHZ-1000MHZ

Vertical



No.	Frequency (MHz)	Reading (dBm)	Correction (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	35.3750	-65.05	-16.30	-81.35	-36.00	-45.35	peak
2	68.3906	-64.09	-19.98	-84.07	-54.00	-30.07	peak
3	157.0072	-55.51	-28.13	-83.64	-36.00	-47.64	peak
4	297.2241	-53.42	-27.92	-81.34	-36.00	-45.34	peak
5	487.3150	-52.62	-27.02	-79.64	-54.00	-25.64	peak
6	827.4932	-49.77	-25.06	-74.83	-54.00	-20.83	peak

Horizontal



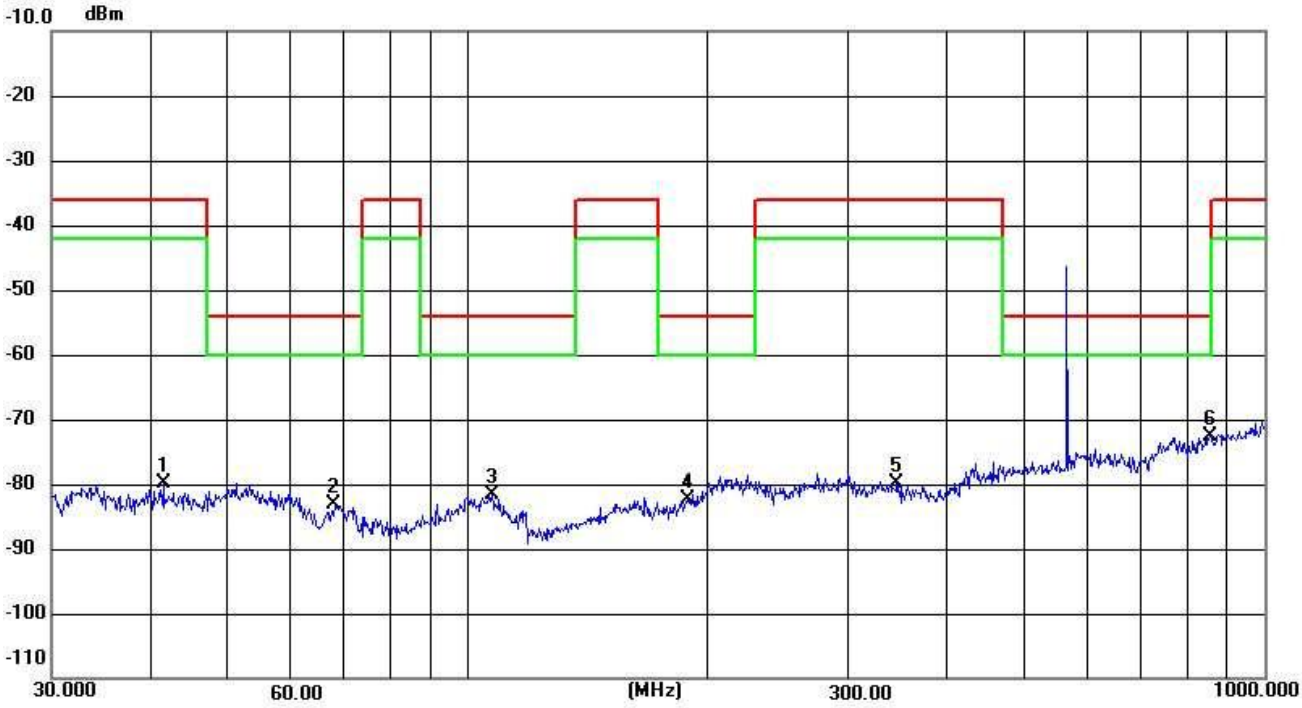
No.	Frequency (MHz)	Reading (dBm)	Correction (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	34.1561	-65.52	-15.71	-81.23	-36.00	-45.23	peak
2	56.5930	-64.70	-16.88	-81.58	-54.00	-27.58	peak
3	117.7724	-54.54	-29.77	-84.31	-54.00	-30.31	peak
4	177.5089	-54.06	-28.82	-82.88	-54.00	-28.88	peak
5	265.6757	-53.26	-27.83	-81.09	-36.00	-45.09	peak
6	766.0570	-49.92	-25.38	-75.30	-54.00	-21.30	peak

Note :

1. Result = Reading + Corrected Factor Note :

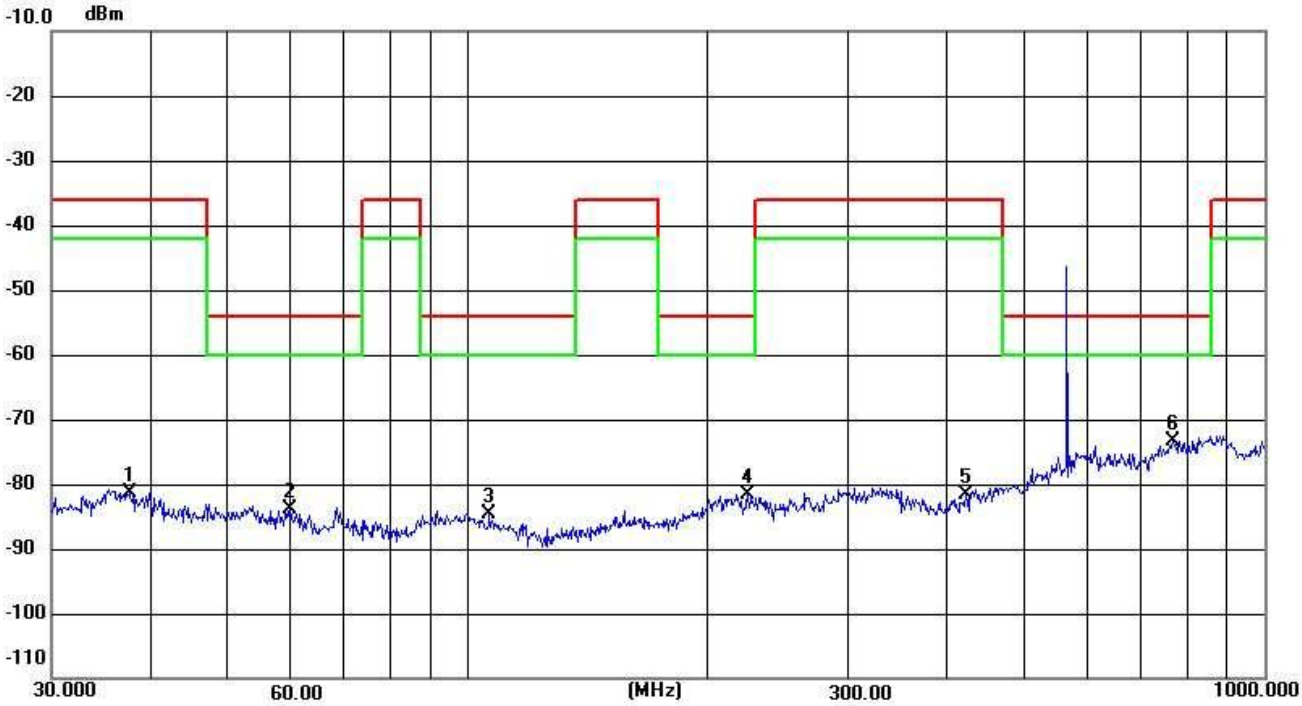
CHNNEL–MIDDLE CH–30MHZ-1000MHZ

Vertical



No.	Frequency (MHz)	Reading (dBm)	Correction (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	41.4215	-62.70	-17.07	-79.77	-36.00	-43.77	peak
2	68.1512	-63.21	-19.95	-83.16	-54.00	-29.16	peak
3	107.1337	-51.94	-29.62	-81.56	-54.00	-27.56	peak
4	188.4122	-53.90	-28.46	-82.36	-54.00	-28.36	peak
5	345.5951	-52.01	-27.90	-79.91	-36.00	-43.91	peak
6	854.0247	-47.74	-24.84	-72.58	-54.00	-18.58	peak

Horizontal



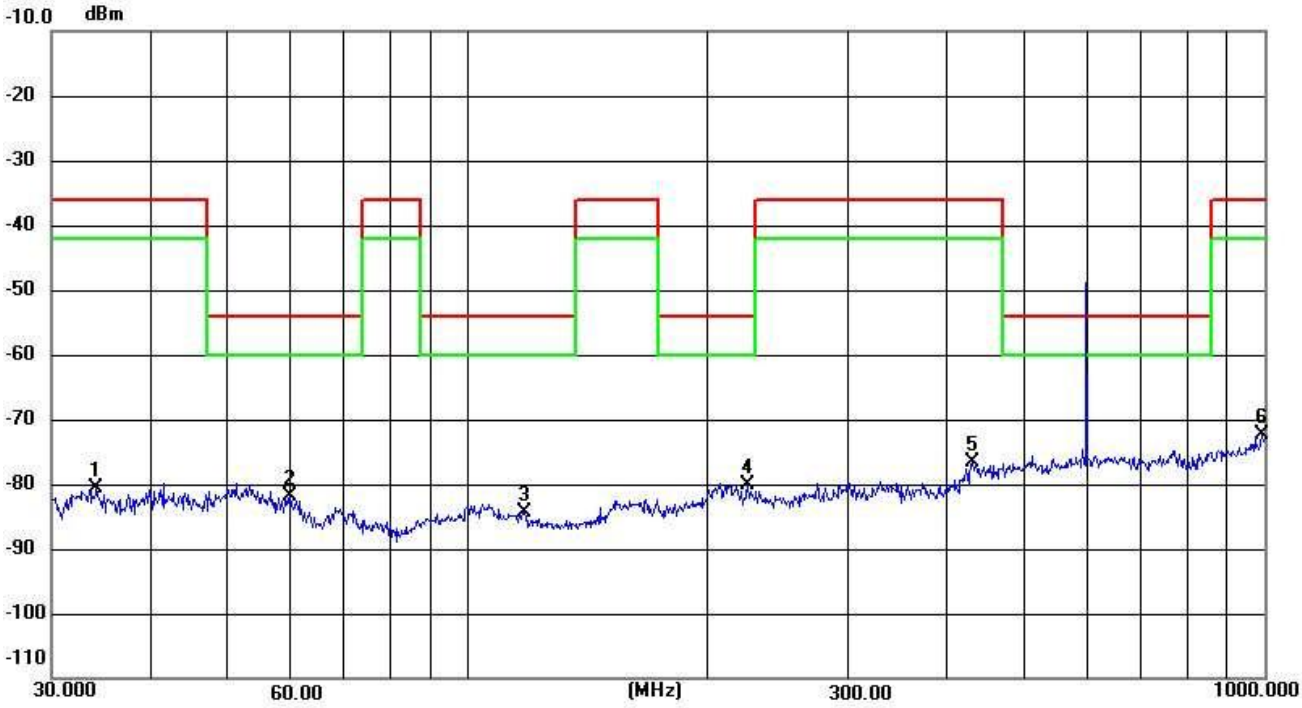
No.	Frequency (MHz)	Reading (dBm)	Correction (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	37.5478	-64.62	-16.72	-81.34	-36.00	-45.34	peak
2	59.8588	-66.98	-16.93	-83.91	-54.00	-29.91	peak
3	106.3850	-54.99	-29.63	-84.62	-54.00	-30.62	peak
4	224.5192	-53.73	-27.77	-81.50	-54.00	-27.50	peak
5	422.0577	-54.01	-27.64	-81.65	-36.00	-45.65	peak
6	766.0570	-47.92	-25.38	-73.30	-54.00	-19.30	peak

Note :

1. Result = Reading + Corrected Factor Note :

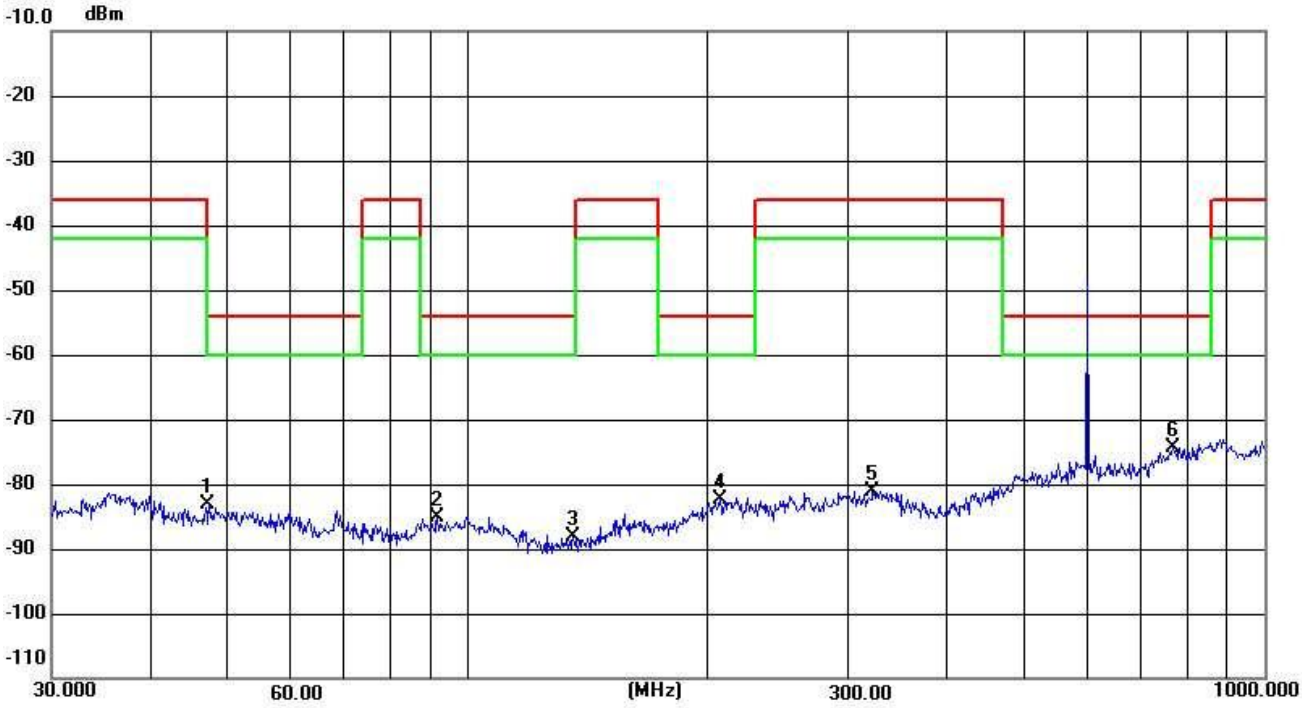
CHNNEL –HIGH CH–30MHZ-1000MHZ

Vertical



No.	Frequency (MHz)	Reading (dBm)	Correction (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	34.1561	-65.02	-15.71	-80.73	-36.00	-44.73	peak
2	59.8588	-64.98	-16.93	-81.91	-54.00	-27.91	peak
3	117.7724	-54.54	-29.77	-84.31	-54.00	-30.31	peak
4	224.5192	-52.23	-27.77	-80.00	-54.00	-26.00	peak
5	429.5228	-49.22	-27.46	-76.68	-36.00	-40.68	peak
6	993.0113	-47.95	-24.34	-72.29	-36.00	-36.29	peak

Horizontal



No.	Frequency (MHz)	Reading (dBm)	Correction (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	47.3253	-66.69	-16.53	-83.22	-54.00	-29.22	peak
2	91.4950	-54.82	-30.23	-85.05	-54.00	-31.05	peak
3	135.5062	-58.86	-29.29	-88.15	-54.00	-34.15	peak
4	207.1226	-54.67	-27.77	-82.44	-54.00	-28.44	peak
5	322.1886	-53.17	-27.92	-81.09	-36.00	-45.09	peak
6	766.0570	-48.92	-25.38	-74.30	-54.00	-20.30	peak

Note :

1. Result = Reading + Corrected Factor Note :

CHANNEL 1GHZ-6GHZ

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Remark
(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	H/V	
Channel Low -550.0MHz							
1100.00	-49.59	8.25	-41.34	-30	-11.34	H	Peak
1650.00	-50.50	8.04	-42.46	-30	-12.46	H	Peak
1100.00	-53.50	9.07	-44.43	-30	-14.43	V	Peak
1650.00	-52.17	10.40	-41.77	-30	-11.77	V	Peak
Channel Middle -574.75MHz							
1149.50	-51.49	10.59	-40.90	-30	-10.90	H	Peak
1724.25	-51.18	11.58	-39.60	-30	-9.60	H	Peak
1149.50	-52.16	11.36	-40.80	-30	-10.80	V	Peak
1724.25	-50.38	8.90	-41.48	-30	-11.48	V	Peak
Channel High -599.75MHz							
1199.50	-53.44	8.79	-44.65	-30	-14.65	H	Peak
1799.25	-49.13	11.58	-37.55	-30	-7.55	H	Peak
1199.50	-53.18	9.16	-44.02	-30	-14.02	V	Peak
1799.25	-49.50	11.37	-38.13	-30	-8.13	V	Peak

Note:Other emissions are attenuated 20dB below the limit, so does not reported in the report.

7. CONDUCTED EMISSION MEASUREMENT

7.1 LIMIT

Operating frequency band. In case the emission fall within the restricted band specified on Part 207(a) limit in the table below has to be followed.

FREQUENCY (MHz)	Conducted Emissionlimit (dBuV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

7.2 TEST PROCEDURE

The following table is the setting of the receiver

Receiver Parameters	**Setting**
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

a. The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

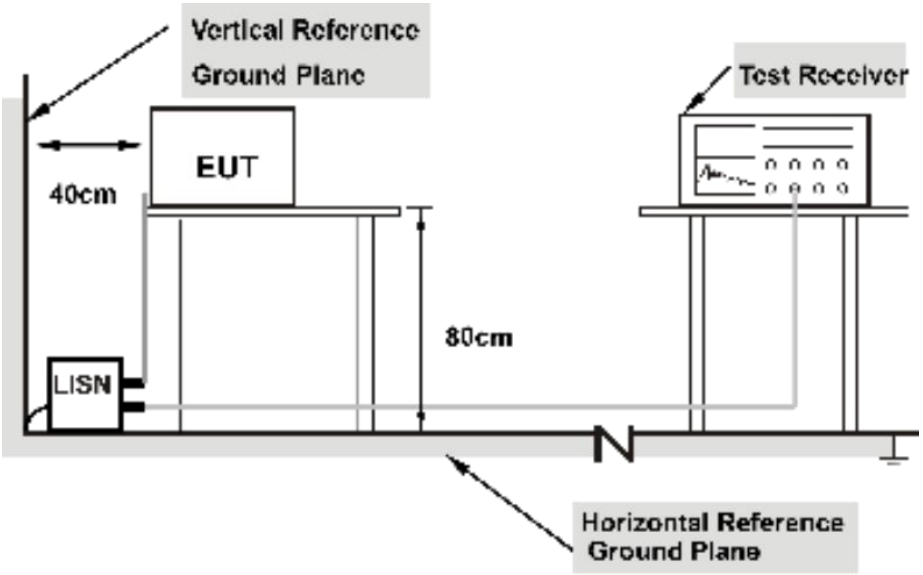
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

d. LISN at least 80 cm from nearest part of EUT chassis.

e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

7.3 TEST SETUP

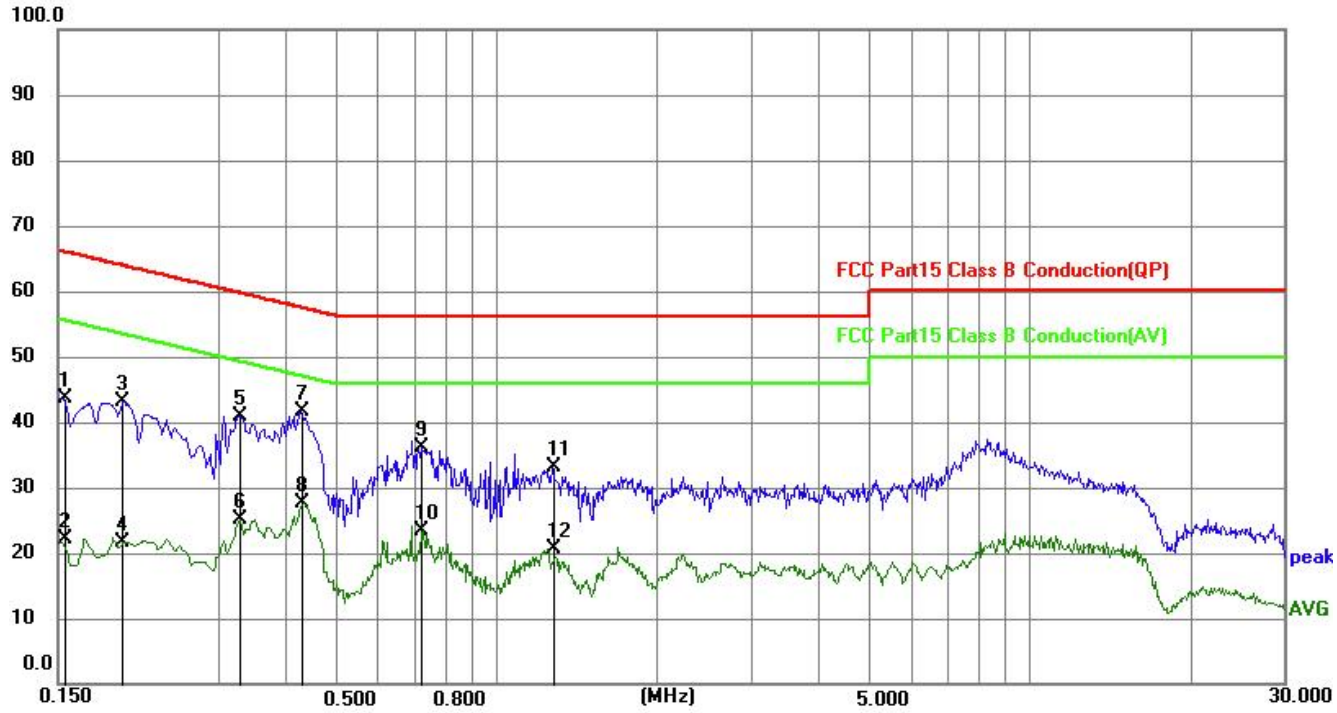


Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

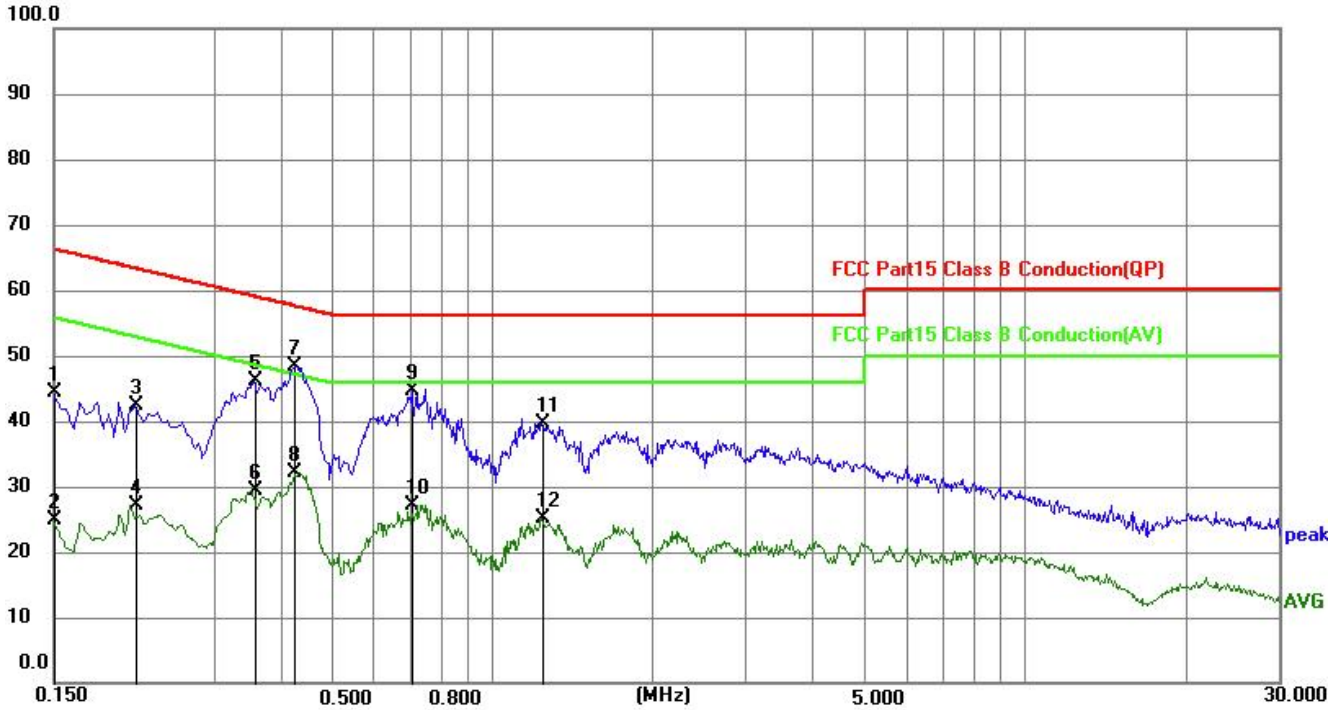
3.4 TEST RESULTS

Temperature:	25℃	Relative Humidity:	50%
Test Mode:	GFSK	Test Voltage:	AC 120V
Result:	L	Result:	Pass



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1545	33.67	10.08	43.75	65.75	22.00	QP
2	0.1545	11.99	10.08	22.07	55.75	33.68	AVG
3	0.1995	33.19	10.05	43.24	63.63	20.39	QP
4	0.1995	11.56	10.05	21.61	53.63	32.02	AVG
5	0.3300	30.94	10.03	40.97	59.45	18.48	QP
6	0.3300	15.08	10.03	25.11	49.45	24.34	AVG
7	0.4290	31.65	10.00	41.65	57.27	15.62	QP
8	0.4290	17.58	10.00	27.58	47.27	19.69	AVG
9	0.7215	26.08	9.98	36.06	56.00	19.94	QP
10	0.7215	13.30	9.98	23.28	46.00	22.72	AVG
11	1.2750	23.07	9.98	33.05	56.00	22.95	QP
12	1.2750	10.68	9.98	20.66	46.00	25.34	AVG

Temperature:	25℃	Relative Humidity:	50%
Test Mode:	GFSK	Test Voltage:	AC 120V
Result:	N	Result:	Pass



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	34.37	10.08	44.45	66.00	21.55	QP
2	0.1500	14.68	10.08	24.76	56.00	31.24	AVG
3	0.2130	32.21	10.05	42.26	63.09	20.83	QP
4	0.2130	17.04	10.05	27.09	53.09	26.00	AVG
5	0.3570	36.10	10.02	46.12	58.80	12.68	QP
6	0.3570	19.39	10.02	29.41	48.80	19.39	AVG
7	0.4245	38.37	10.00	48.37	57.36	8.99	QP
8	0.4245	22.21	10.00	32.21	47.36	15.15	AVG
9	0.7080	34.63	9.98	44.61	56.00	11.39	QP
10	0.7080	17.06	9.98	27.04	46.00	18.96	AVG
11	1.2390	29.64	9.98	39.62	56.00	16.38	QP
12	1.2390	15.08	9.98	25.06	46.00	20.94	AVG

Remark:

1. All readings are Quasi-Peak and Average value

8. FREQUENCY STABILITY

8.1 LIMIT

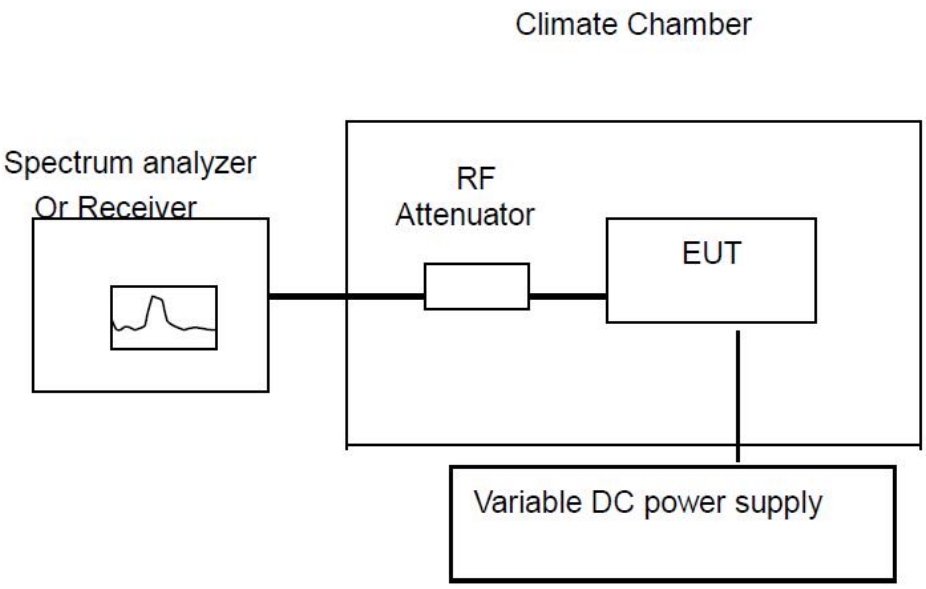
The frequency tolerance of the carrier signal shall be maintained within ±0.005% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C

8.2 TEST PROCEDURE

a. The EUT was connected to an external DC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber. The DC leads and the RF output cable, exited the chamber through an opening made for that purpose.
After the temperature stabilized the frequency output was recorded form the counter. An external variable DC power supply was connected to the battery terminals of the equipment under test.

b. For hand carried, battery powered equipment primary supply voltage was reduced to the battery operating end point as specified by the manufacturer. The output frequency was recorded for each battery voltage.

8.3 TEST SETUP



8.4 TEST RESULTS

(1) Frequency stability versus input voltage (Supply Nominal voltage is DC 12V)

(2) Frequency stability versus input voltage (Supply battery operating end point which shall be specified by the manufacturer DC 10.2V)

Refernce Frequency: 550.0MHz			
Power supply	Environment Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)
DC 10.2V	20	888	1.614545455
DC 12V	20	882	1.603636364
DC 13.8V	20	885	1.609090909

Refernce Frequency: 550.0MHz				
Frequency Deviation measured with time Elapse(30 minutes)				
Environment Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Results
50	886	1.610909091	50	Pass
40	896	1.629090909		
30	899	1.634545455		
20	892	1.621818182		
10	873	1.587272727		
0	879	1.598181818		
-10	875	1.590909091		
-20	880	1.60		

Refernce Frequency: 574.75MHz			
Power supply	Environment Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)
DC 10.2V	20	1113	1.936494128
DC 12V	20	1110	1.931274467
DC 13.8V	20	1117	1.943453676

Refernce Frequency: 574.75MHz				
Frequency Deviation measured with time Elapse(30 minutes)				
Environment Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Results
50	1115	1.939973902	50	Pass
40	1119	1.946933449		
30	1123	1.953892997		
20	1128	1.962592431		
10	1126	1.959112658		
0	1109	1.92953458		
-10	1106	1.92431492		
-20	1105	1.922575033		

Refernce Frequency: 599.75MHz			
Power supply	Environment Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)
DC 10.2V	20	148	0.246769487
DC 12V	20	147	0.245102126
DC 13.8V	20	141	0.235097957

Refernce Frequency: 599.75MHz				
Frequency Deviation measured with time Elapse(30 minutes)				
Environment Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Results
50	149	0.248436849	50	Pass
40	146	0.243434764		
30	158	0.263443101		
20	151	0.251771571		
10	156	0.260108378		
0	143	0.23843268		
-10	149	0.248436849		
-20	144	0.240100042		

※※※※※END OF THE REPORT※※※※※