FCC CERTIFICATION TEST REPORT FOR

FCC ID: 2AFMLBMTX-SC16

Report Reference No. ..... :	15IAS06027 81
Date of issue ..... :	2015-7-20
Testing Laboratory ..... :	ATT Product Service Co., Ltd.
Address ..... :	No. 3, ChangLianShan Industrial Park, ChangAn Town, DongGuan City, GuangDong, China.
Applicant's name ..... :	Brighton Technologies Pty Ltd
Address ..... :	8/31 Maclaurin Ave, East Hills NSW 2213 | PO Box 284, Panania NSW 2213
Manufacturer ..... :	Global asia High-Tech Electronics co.Ltd
Address ..... :	Cai Wu Industrial Park Wu Sha Administrative District, Chang An. Dong Guan Guang Dong Ching
Test specification:	
Test item description ..... :	Paging Transmitter
Trade Mark ..... :	BTG
Model/Type reference ..... :	BMTX-SC16
Ratings ..... :	Input: 12Vdc from adapter supply input: 120V/60Hz;

Tested by

（Bin Jiang/ Engineer）

Approved by

（King Wang /EMC Manager）

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TEST REPORT DECLARE

Applicant	:	Brighton Technologies Pty Ltd
Address	:	8/31 Maclaurin Ave, East Hills NSW 2213 | PO Box 284, Panania NSW 2213
Equipment under Test	:	Paging Transmitter
Model No	:	BMTX-SC16
Trade Mark	:	BTG
Manufacturer	:	Global asia High-Tech Electronics co.Ltd
Address	:	Cai Wu Industrial Park Wu Sha Administrative District, Chang An. Dong Guan Guang Dong Ching

Test Standard Used: FCC Rules and Regulations Part 15 Subpart C: 2010

Test procedure used: ANSI C63.10:2013 ANSI C63.4:2014

FCC ID: 2AFMLBMTX-SC16

We Declare:

The equipment described above is tested by ATT Product Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and ATT Product Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.

Report No:	15IAS06027 81		
Date of Test:	2015-7-7 To 2015-7-12	**Date of Report**:	2015-7-20

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of ATT Product Service Co., Ltd.

1.Summary of test Standards and results

The EUT have been tested according to the applicable standards as referenced below.

Description of Test Item	Standard	Results
Variation of power source	15.31(e)	PASS
Antenna requirement	15. 203	PASS
Conducted limits	15.207 ANSI C63.10 :2013	PASS
Conditions for intentional radiators to comply with periodic pperation	15.231(a)(1) ANSI C63.10 :2013	PASS
Field strength emissions	15.231(b) ANSI C63.10 :2013	PASS
Emission bandwidth	15.231(c) ANSI C63.10 :2013	PASS
Requiments for devices operating within 40.66-40.70MHz band	15.231(e) ANSI C63.10 :2013	N/A
Conditions for intentional radiators to comply with periodic operation	15.231(d) ANSI C63.10 :2013	NA
Note: (1) N/A" denotes test is not applicable in this Test Report		

2.General test information

2.1ACCRESITATIONS

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

USA	**FCC**	**Registration Number :923232**
Canada	**INDUSTRY CANADA**	**Registration Number 11033A**

2.2 Description of EUT

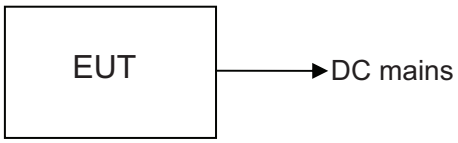
EUT* Name	:	Paging Transmitter
Model Number	:	BMTX-SC16
Trade Mark	:	BTG
EUT function description	:	Please reference user manual of this device
Power supply	:	Input: 12Vdc from adapter supply input: 120V/60Hz;
Operation frequency	:	433.92MHz
Modulation	:	ASK
Antenna Type	:	EXTERNL antenna, maximum PK gain:2.15dBi
Date of Receipt	:	2015-6-29
Sample Type	:	Sole production

Note: EUT is the ab. of equipment under test.

2.3 Accessories of EUT

Description of Accessories	Manufacturer	Model number or Type	Other
/	/	/	/

2.4 Block diagram of EUT configuration for test



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2.5 Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25℃
Humidity range:	40-75%
Pressure range:	86-106kPa

2.6 Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.44dB
Uncertainty for Radiation Emission test (150KHz-30MHz)	3.21dB
Uncertainty for Radiation Emission test (30MHz-1GHz)	3.14 dB (Polarize: V)
	3.16 dB (Polarize: H)
Uncertainty for Radiation Emission test (1GHz to 25GHz)	2.08dB(Polarize: V)
	2.56dB (Polarize: H)
Uncertainty for radio frequency	1×10-9
Uncertainty for conducted RF Power	0.65dB

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

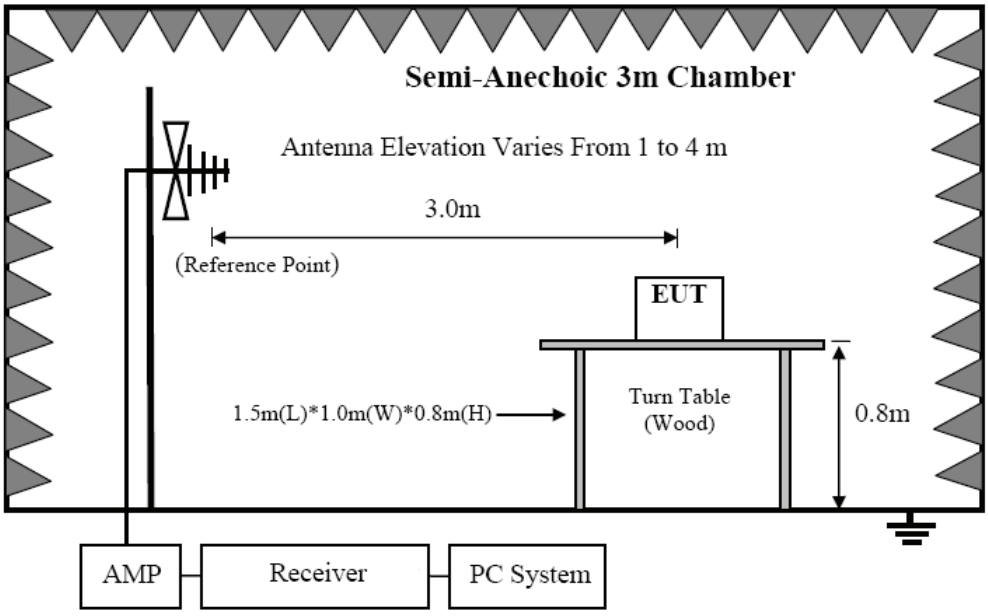
3.Radiated emission

3.1Test equipment

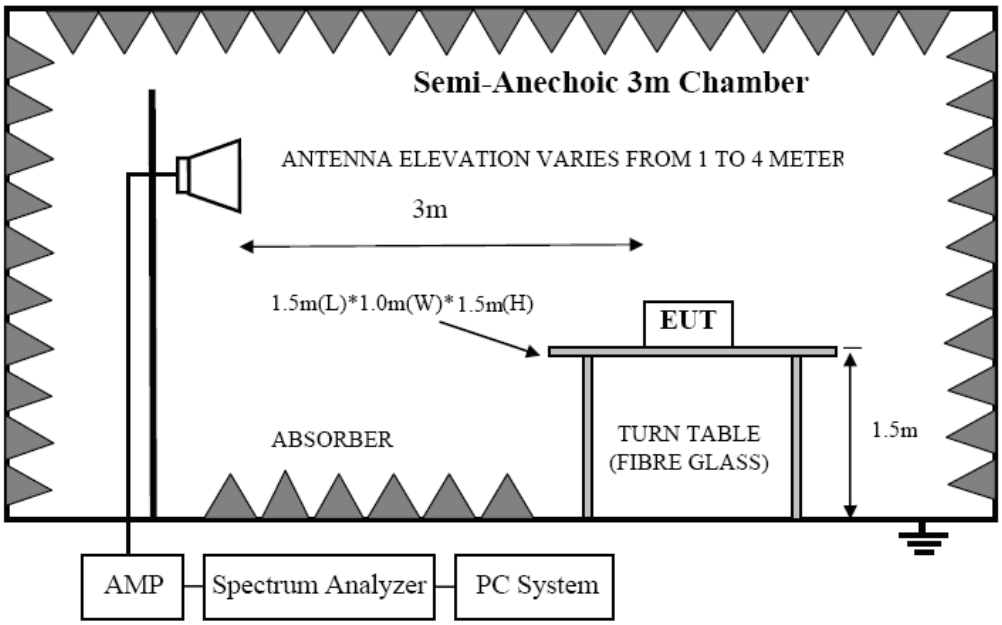
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until	Cal. Interval
1	EMI Test Receiver	R&S	ESCI	101307	2015/12/26	1Y
2	Spectrum analyzer	Agilent	E4407B	US40240708	2016/07/11	1Y
3	Loop antenna	Chase	HLA6120	20129	2015/12/26	1Y
4	Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	2015/12/26	1Y
5	Double Ridged Horn Antenna	R&S	HF907	100276	2015/12/26	1Y
6	Pre-Amplifier	R&S	SCU-01	10049	2015/12/26	1Y
7	Pre-amplifier	A.H.	PAM0-0118	360	2015/12/26	1Y
8	RF Cable	R&S	R01	10403	2015/12/26	1Y
9	RF Cable	R&S	R02	10512	2015/12/26	1Y
10	Horn Antenna	EMCO	3116	9608-4877	2015/12/26	1Y

3.2Block diagram of test setup

In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP

3.3 Limits

In addition to the provisions of &15.205 and &15.209,the field strength of emissions from intentional radiators

Operated under this section shall not exceed the following:

Fundamental frequency	Field strength of fundamental		Field strength of spurious emissions	
(MHz)	uV/m	dBuV/m	uV/m	dBuV/m
40.66-40.70	1000	60	100	40
70-130	500	54	50	34
130-174	500 to 1500	54-63.5	50 to 150	34 to 43.5
174-260	1500	63.5	150	43.5
260-470	1500 to 5000	63.5-74	150to 500	43.5 to 54
Abover 470	5000	74	500	54

3.4 Test Procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

(2) Test antenna was located 3m from the EUT on an adjustable mast.

(3) Spectrum frequency from 30MHz to 4.5GHz (tenth harmonic of fundamental frequency) was swept

Note: According FCC 15.33(a) the spectrum shall be investigated from the lowest radio frequency signal generated in the device. so radiated emissions were investigated start from 30MHz.

Below pre-scan procedure was first performed in order to find prominent radiated emissions.

(a) Change work frequency or channel of device if practicable.

(b) Change modulation type of device if practicable.

(c) Change power supply range from 85% to 115% of the rated supply voltage.

(d) Adjust the EUT's antenna length and position is practicable.

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produce highest emissions.

(f) Rotated EUT from 0 degree to 360 degree and varied test antenna height from 1m to 4m in both horizontal and vertical polarities.

(4) When the relative maximum emissions were swept in step 4, holding the EUT's state, use the follow procedures to measure out the final emissions of device.

(a) Marked to the interested frequency point with appropriate span to see the whole signal wave.

(b) For emissions below 1GHz except fundamental, the Spectrum Analyzer's RBW is set at 120 KHz,VBW is set at 300 KHz, for emissions above 1GHz except fundamental, the Spectrum Analyzer's RBW is set at 1MHz, and VBW is set at 3MHz. For fundamental emission the Spectrum Analyzer's RBW is set at 200 KHz (above 20dB bandwidth of fundamental signal), and VBW is set at 300 KHz.

(c) At each measured frequency point, the maximum Peak levels were measured by rotated EUT and varied test antenna.

(5) The duty cycle factor was use to calculate Average Level as below formula:

Average level = PK Level – duty cycle factor

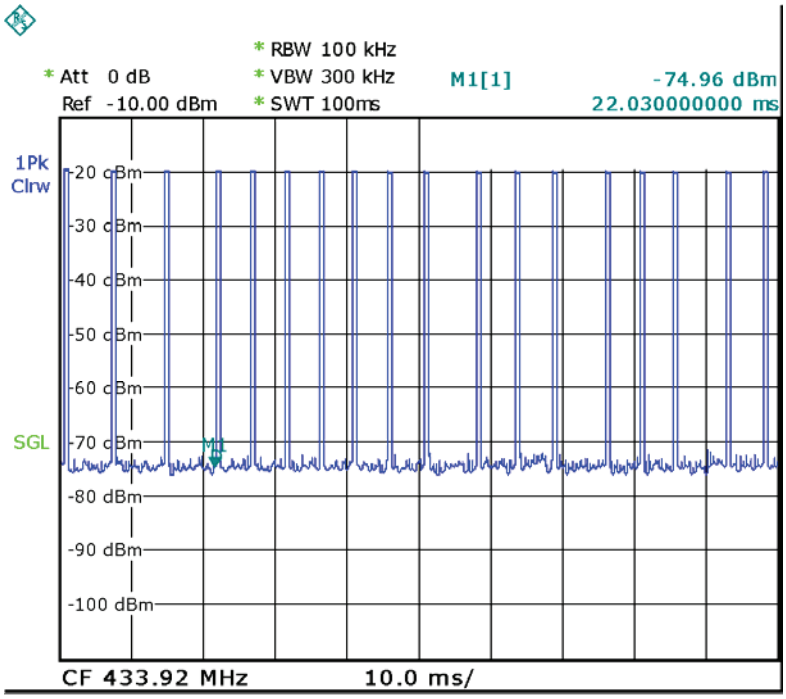
3.5 Test Result

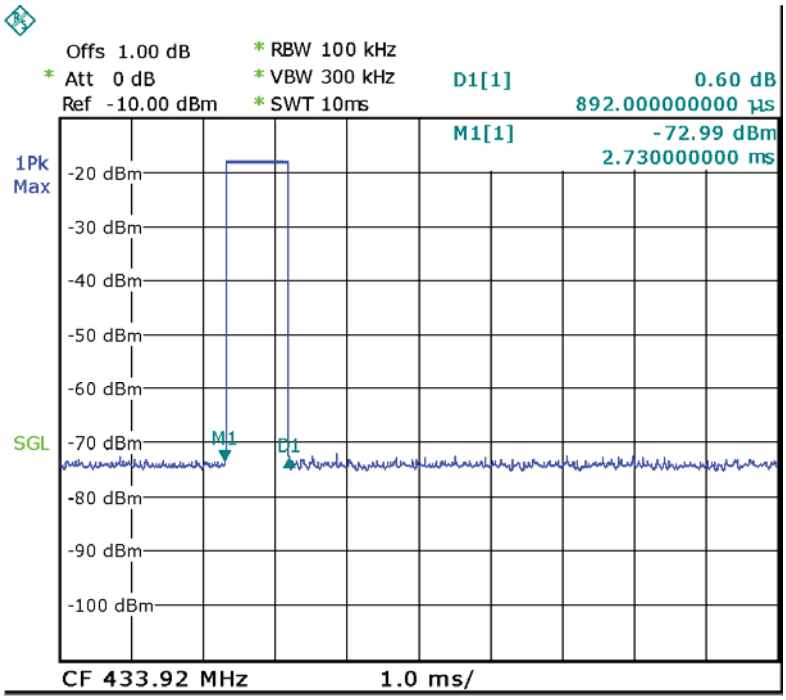
PASS. (See below detailed test result)

The frequency range from 30MHz to 4500MHz was investigated. When PK measured levels comply with average limit, then the average levels were deemed to comply with average limit. When PK measured levels exceed average limit, and, Duty cycle factor is used to calculate average level. Vertical and Horizontal mode all have been tested ，Vertica mode is the worse case

Duty cycle(x)= (0.892ms*18)/100ms*100%=16.06%
Duty cycle factor = 20 log (1/x) = -15.85dB

duty cycle：





Radiated Emission Test Result

Test Site : 3m Chamber

Test Date : 2015-7-12 **Tested By** : Lake

EUT : Paging Transmitter **Model Number** : BMTX-SC16

Power Supply : AC 120V/60Hz; **Test Mode** : Tx mode

Condition : Temp:24.5'C,Humi:55% **Antenna/Distance** : 3m

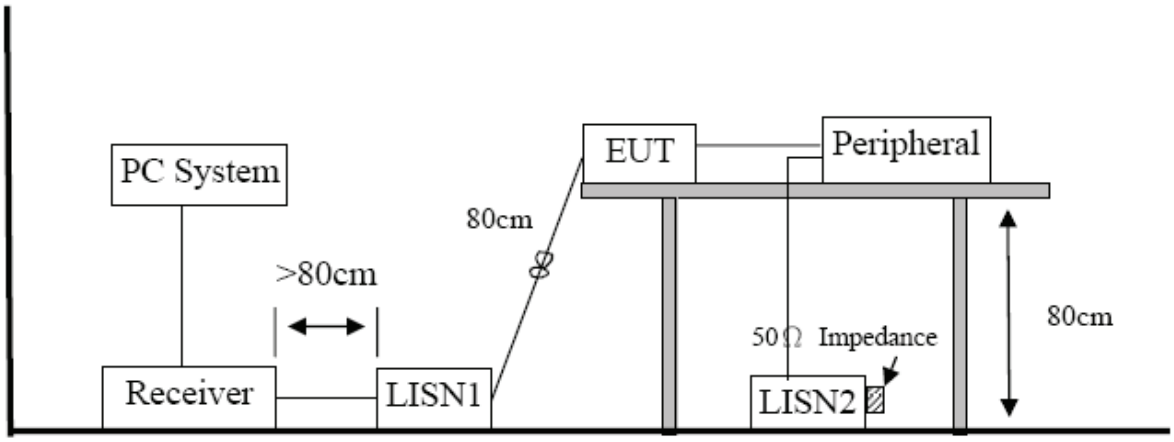
Frequency (MHz)	PK Reading (dBuV/m)	Polar (H/V)	AV Limit (dBμV/m)
433.92	72.45	V	80.83
433.92	68.59	H	80.83
867.84	53.22	V	60.83
867.84	49.71	H	60.83
1301.76	48.02	V	54
1301.76	45.93	H	54
1735.68	43.15	V	54
1735.68	40.77	H	54

4. Power Line Conducted Emission

4.1 Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Due.	Cal. Interval
1	Test Receiver	R&S	ESCI	101308	2015/12/26	1 Year
2	LISN 1	AFJ	LS16	16011103219	2015/12/26	1 Year
3	LISN 2	R&S	ESH2-Z5	100309	2015/12/26	1 Year
4	Pulse Limiter	MTS-systemtechnik	MTS-IMP-136	261115-010-0024	2015/12/26	1 Year

4.2 Block diagram of test setup



4.3 Power Line Conducted Emission Limits (Class B)

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

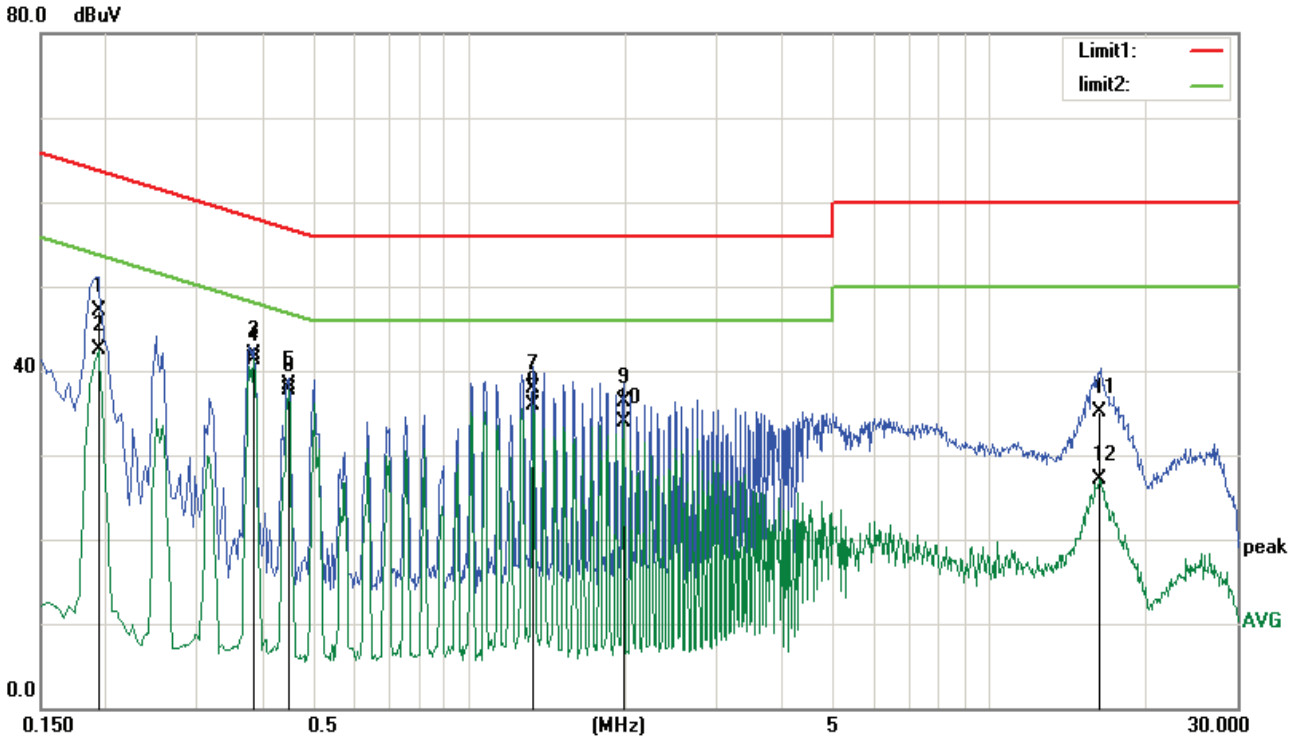
Note 2: The lower limit shall apply at the transition frequencies

4.4 Test Procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane. Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 10.2 of this report. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4: 2009. All support equipment power received from a second LISN. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT. The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes. During the above scans, the emissions were maximized by cable manipulation. The test mode(s) described in clause 2.4 were scanned during the preliminary test. After the preliminary scan, we found the test mode producing the highest emission level. The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded. The bandwidth of test receiver is set at 9 KHz.

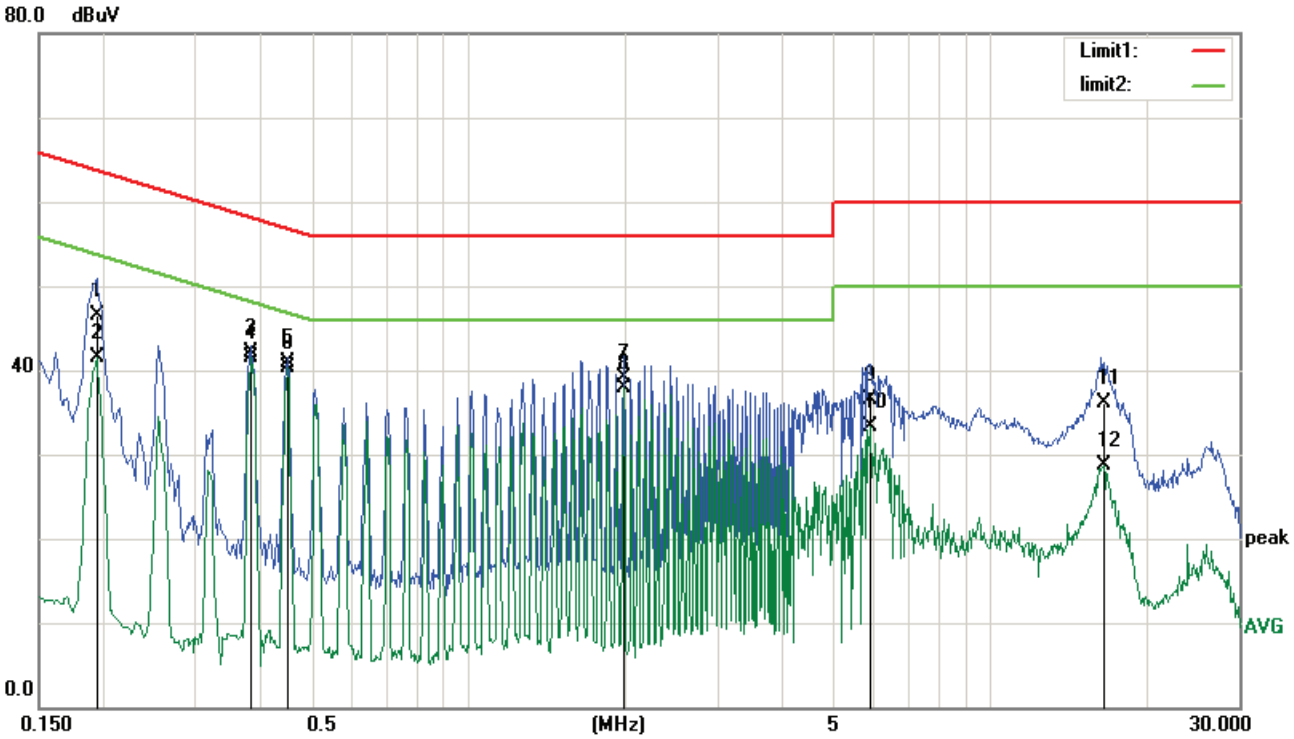
4.5 Test Result

EUT:	Paging Transmitter	Model No.:	BMTX-SC16
Temperature:	24℃	Relative Humidity:	55%
Probe:	L1	Test Power:	AC 120V/60Hz
Standard:	(CE)FCC PART 15_B	Test Result:	Pass
Test Mode:	Tx	Test By:	Lake
Note:	433.92MHz		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1940	36.02	11.17	47.19	63.86	-16.67	QP
2	0.1940	31.34	11.17	42.51	53.86	-11.35	AVG
3	0.3860	31.66	10.33	41.99	58.15	-16.16	QP
4	0.3860	31.05	10.33	41.38	48.15	-6.77	AVG
5	0.4500	28.03	10.24	38.27	56.87	-18.60	QP
6	0.4500	27.51	10.24	37.75	46.87	-9.12	AVG
7	1.3300	27.79	10.10	37.89	56.00	-18.11	QP
8	1.3300	25.83	10.10	35.93	46.00	-10.07	AVG
9	1.9818	26.13	10.11	36.24	56.00	-19.76	QP
10	1.9818	23.84	10.11	33.95	46.00	-12.05	AVG
11	16.2819	25.00	10.16	35.16	60.00	-24.84	QP
12	16.2819	16.86	10.16	27.02	50.00	-22.98	AVG

EUT:	Paging Transmitter	Model No.:	BMTX-SC16
Temperature:	24℃	Relative Humidity:	55%
Probe:	N	Test Power:	AC 120V/60Hz
Standard:	(CE)FCC PART 15_B	Test Result:	Pass
Test Mode:	Tx	Test By:	Lake
Note:	433.92MHz		



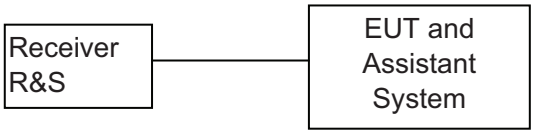
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1940	35.41	11.17	46.58	63.86	-17.28	QP
2	0.1940	30.25	11.17	41.42	53.86	-12.44	AVG
3	0.3820	31.70	10.33	42.03	58.23	-16.20	QP
4	0.3820	31.19	10.33	41.52	48.23	-6.71	AVG
5	0.4500	30.58	10.24	40.82	56.87	-16.05	QP
6	0.4500	30.01	10.24	40.25	46.87	-6.62	AVG
7	1.9858	28.97	10.11	39.08	56.00	-16.92	QP
8	1.9858	27.70	10.11	37.81	46.00	-8.19	AVG
9	5.9019	26.33	10.11	36.44	60.00	-23.56	QP
10	5.9019	23.25	10.11	33.36	50.00	-16.64	AVG
11	16.5379	25.85	10.16	36.01	60.00	-23.99	QP
12	16.5379	18.56	10.16	28.72	50.00	-21.28	AVG

5. Stop transmiitting time test

5.1 Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until	Cal. Interval
1	EMI Test Receiver	R&S	ESCI	101307	2015/12/26	1Y

5.2 Block diagram of test setup



5.3 Limits

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

5.4 Test Procedure

(1). The EUT's RF signal was coupled to spectrum analyzer by a antenna connected to spectrum analyzer..

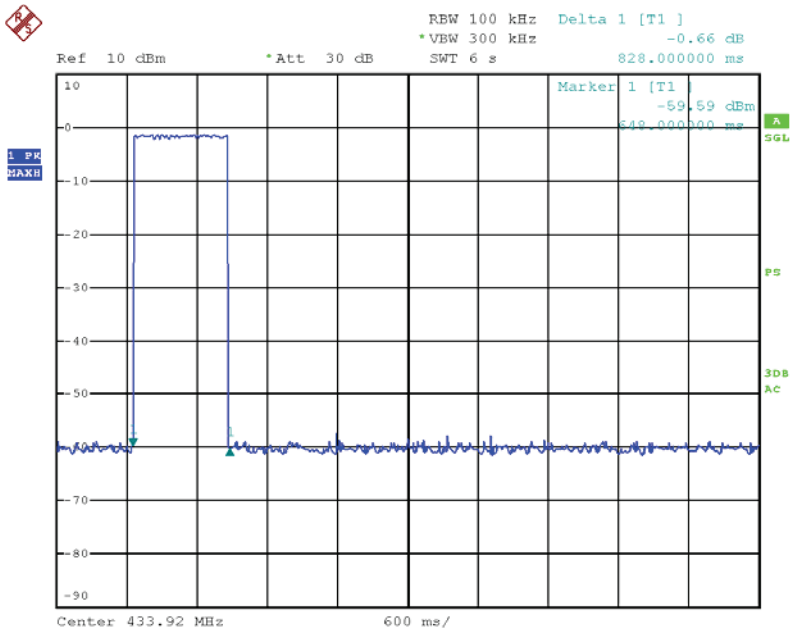
(2). Set the spectrum to zero span mode, and centered of EUT frequency.

(3). Measure the EUT stop transmitting time.

5.5 Test Result

PASS. (See below detailed test result)

5.6 Original test data



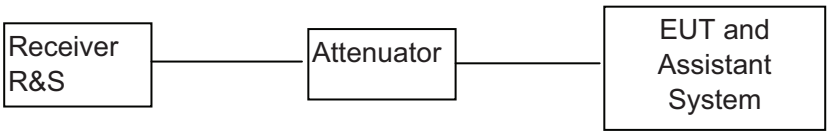
Remark: Dwell time = 828ms <5s

6. 20dB bandwidth

6.1 Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until	Cal. Interval
1	EMI Test Receiver	R&S	ESCI	101307	2015/12/26	1Y

6.2 Block diagram of test setup



6.3 Limits

The bandwidth of the emission shall be no wider than 0.25% of the center frequency of devices operation above 70MHz and below 900MHz

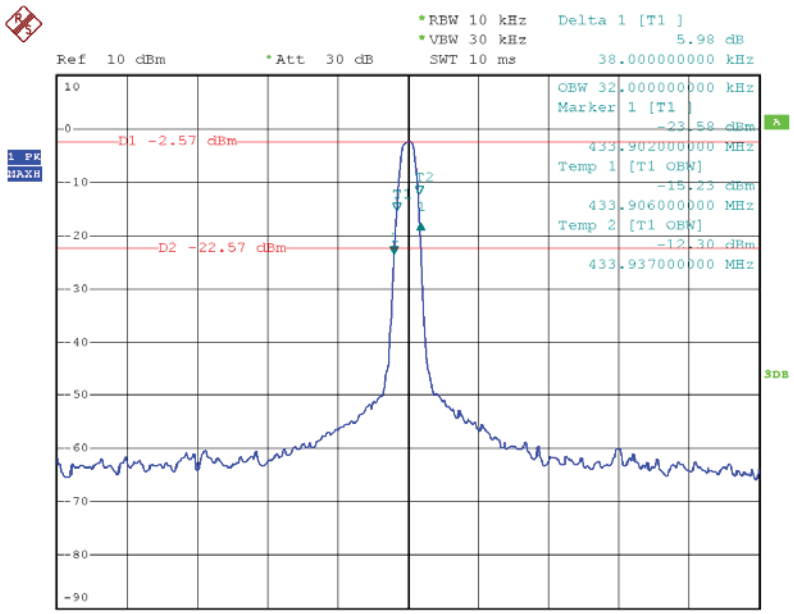
6.4 Test Procedure

1. The EUT's RF signal was coupled to spectrum analyzer by a antenna connected to spectrum analyzer.
2. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 10 kHz RBW and 30 kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

6.5 Test Result

Frequency (MHz)	20 dB Bandwidth (kHz)	Limit(kHz): No wider than 0.25% of the center frequency	Conclusion
433.92	38	433.92*0.25%=1.0848MHz	PASS

6.6 Original test data



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