FCC Part 15
EMI TEST REPORT

of

E.U.T. : 5.8GHz Wireless
Audio/Video Sender
MODEL : TTA-A5805T, TTA-B5805T
FCC ID. : O6LTTA-AB5805T

for

APPLICANT : Tranwo Technology Corp.
ADDRESS : 6F., No. 49, Guangming 6th Rd., Jubei City,
Hsinchu, Taiwan

Test Performed by

ELECTRONICS TESTING CENTER, TAIWAN
NO. 34, LIN 5, DING FU TSUN, LINKOU HSIANG,
TAIPEI HSIEN, TAIWAN, R.O.C.
TEL : (02)26023052 FAX: (02)26010910

http：// www.etc.org.tw; e-mail：emc@etc.org.tw

Report Number : 09-12-RBF-140-01

TEST REPORT CERTIFICATION

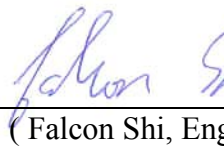
Applicant	: Tranwo Technology Corp.
	6F., No. 49, Guangming 6th Rd., Jubei City, Hsinchu, Taiwan
Manufacturer	: Tranwo Technology Corp.
	6F., No. 49, Guangming 6th Rd., Jubei City, Hsinchu, Taiwan
Description of EUT	
a) Type of EUT	: 5.8GHz Wireless Audio/Video Sender
b) Trade Name	: Tranwo
c) Model No.	: TTA-A5805T, TTA-B5805T
d) Power Supply	: I/P: 100-240V, 50/60Hz, 200mA; O/P: 9Vdc 500mA
e) Frequency Range	: 5760MHz-5860MHz(Tx), 433.92MHz(Rx)

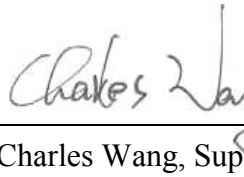
Regulation Applied : FCC Rules and Regulations Part 15 Subpart C (2009)

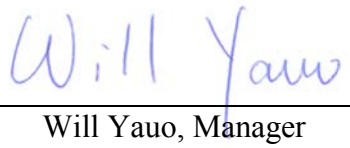
I HEREBY CERTIFY THAT: The data shown in this report were made in accordance with the procedures given in ANSI C63.4, and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

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

Issued Date : Dec. 21, 2010

Test Engineer : 
(Falcon Shi, Engineer)

Check By : 
(Charles Wang, Supervisor)

Approve & Authorized Signer : 
Will Yauo, Manager
EMC Dept. II of ELECTRONICS
TESTING CENTER, TAIWAN

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1 GENERAL INFORMATION

1.1 Product Description

a)	Type of EUT	: 5.8GHz Wireless Audio/Video Sender
b)	Trade Name	: Tranwo
c)	Model No.	: TTA-A5805T, TTA-B5805T
d)	Power Supply	: I/P: 100-240V, 50/60Hz, 200mA; O/P: 9Vdc 500mA
e)	Frequency Range	: 5760MHz-5860MHz(Tx), 433.92MHz(Rx)
f)	Model difference declared by the manufacturer	: TTA-A5805T and TTA-B5805T are identical in RF PCB designation and the only difference is the A/V signal connector. TTA-A5805T: 3.5mm A/V connector TTA-B5805T: RCA jack A/V connector

1.2 Characteristics of Device

1. UHF antenna
2. Power indicator/IR windows
3. IR mouse jack (transmitter only)
4. Power adapter jack

1.3 Test Methodology

Both conducted and radiated emissions were performed according to the procedures illustrated in ANSI C63.4 (2003). Other required measurements were illustrated in separate sections of this test report for details.

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the roof top of Building at NO.34, LIN 5, DINGFU TSUEN, LINKOU SHIANG TAIPEI COUNTY, TAIWAN, 24442, R.O.C.

This site has been fully described in a report submitted to your office, and accepted in a letter dated Aug. 05, 2008

2 PROVISIONS APPLICABLE

2.1 Definition

Unintentional radiator:
A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class A Digital Device:
A digital device which is marketed for use in commercial or business environment; exclusive of a device which is market for use by the general public, or which is intended to be used in the home.

Class B Digital Device :
A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business of industrial environment. Example of such devices that are marketed for the general public.

Note : A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

Intentional radiator:
A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Requirement for Compliance

(1) Conducted Emission Requirement

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50MH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency MHz	Quasi Peak dBμV	Average dBμV
0.15 - 0.5	66-56	56-46
0.5 - 5.0	56	46
5.0 - 30.0	60	50

(2) Radiated Emission Requirement

For unintentional device, according to §15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency MHz	**Distance Meters**	**Radiated dBμV/m**	**Radiated μV/m**
30 - 88	3	40.0	100
88 - 216	3	43.5	150
216 - 960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to §15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

For intentional radiator device, per §15.249(a), the field strength of emissions shall comply with the following :

Frequency	Distance	Fundamental		Harmonic	
MHz	Meters	dBμV/m	mV/m	dBμV/m	μV/m
902 - 928	3	94	50	54	500
2400 - 2483.5	3	94	50	54	500
5725 - 5875	3	94	50	54	500
24000 - 24250	3	108	250	68	2500

In accordance with §15.249(e), limits shown in above table are based on average limits for frequencies above 1000 MHz, and frequencies below 1000 MHz are based on quasi peak. However, the peak field strength of any emission shall not exceed the maximum permitted average limits by more than 20 dB.

(3) Spurious in Out Band Requirement

For intentional device, according to §15.249 (d), emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of fundamental or to the general radiated emission limits in §15.209.

(4) Antenna Requirement

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

2.3 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42-16.423	399.9-410	4.5-5.25
0.495 - 0.505 **	16.69475 - 16.69525	608-614	5.35-5.46
2.1735 - 2.1905	16.80425 - 16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475 - 156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3360-4400	Above 38.6
13.36-13.41			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

2.4 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.5 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

The Federal Communications Commission Radio Frequency Interference Statement includes the following paragraph.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio / TV technician for help.

3. SYSTEM TEST CONFIGURATION

3.1 Justification

For both radiated and conducted emissions, the system was configured for testing in a typical fashion as a customer would normally use it. The peripherals other than EUT were connected in normally standing by situation.

All measurement were intentional to maximum the emissions from EUT by varying the connection cables, therefore, the test result is sure to meet the applicable requirement.

3.2 Devices for Tested System

Device	Manufacturer	Model / FCC ID	Description
* 5.8GHz Wireless Audio/Video Sender	Tranwo Technology Corp.	TTA-A5805T, TTA-B5805T / O6LTTA-AB5805T	1.8m Unshielded AC Adaptor 2.0m Unshielded AV Cable
DVD Player	SONY	DVP-NS530	1.5m Unshielded AC Adaptor

Remark "*" means equipment under test.

4 RADIATED EMISSION MEASUREMENT

4.1 Applicable Standard

For intentional radiators, according to §15.249 (a), operation within the frequency band of 5.725 to 5.875 GHz, the fundamental field strength shall not exceed 94 dBuV/m and the harmonics shall not exceed 54 dBuV/m. For out band emission except for harmonics shall be comply with §15.209 or at least attenuated by 50 dB below the level of the fundamental.

4.2 Measurement Procedure

1. Setup the configuration per figure 1 and 2 for frequencies measured below and above 1 GHz respectively.
2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies of higher emissions will be checked on a open test site. As the same purpose, for emission frequencies measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.
3. For emission frequencies measured below and above 1 GHz, set the spectrum analyzer on a 100 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.
5. Repeat step 4 until all frequencies need to be measured were complete.
6. Repeat step 5 with search antenna in vertical polarized orientations.
7. Check the three frequencies of highest emission with varying the placement of cables associated with EUT to obtain the worse case and record the result.

Figure 1 : Frequencies measured below 1 GHz configuration

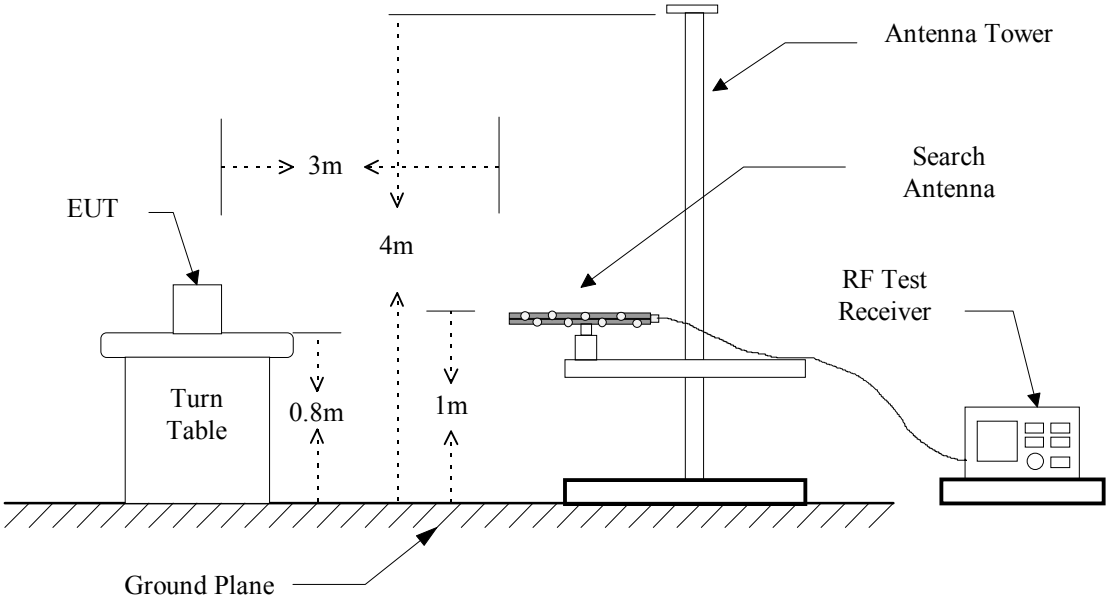
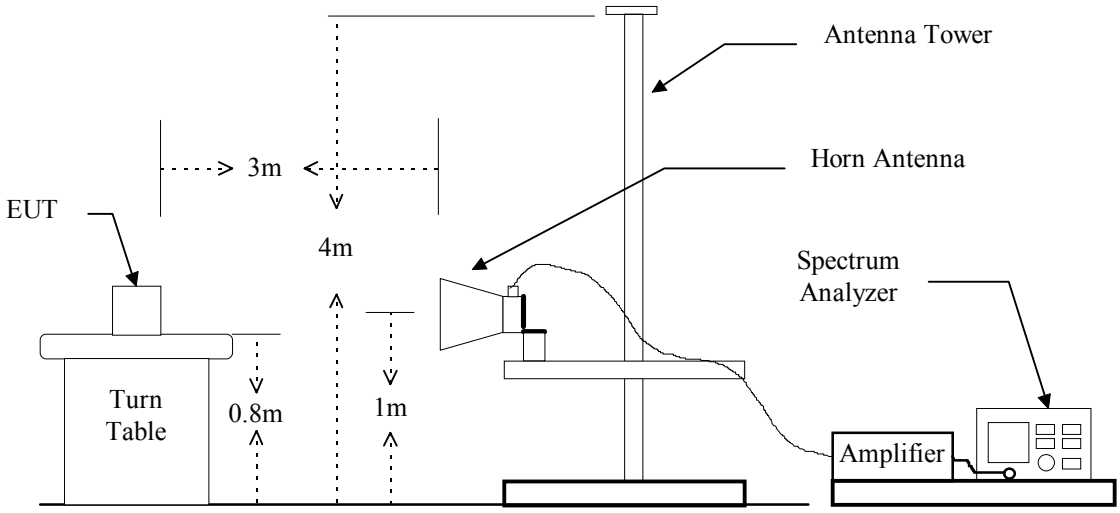


Figure 2 : Frequencies measured above 1 GHz configuration



4.3 Measuring Instrument

The following instrument are used for radiated emissions measurement:

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Test Receiver	Rohde & Schwarz	ESCI	2010/02/03	2011/02/02
Spectrum	Advantest	R3162	2010/03/01	2011/02/28
Bi-Log Antenna	Schaffner	CBL 6111	2010/05/21	2011/50/20
Log-periodic Antenna	EMCO	3146	2010/10/11	2011/10/10
Biconical Antenna	EMCO	3110B	2010/10/11	2011/10/10
Double Ridged Antenna	EMCO	3115	2010/05/11	2011/05/10
Amplifier	HP	8449B	2009/12/16	2010/12/15
Amplifier	HP	83051A	2010/05/13	2011/05/12
Amplifier	HP	8447D	2010/05/10	2011/05/09
Spectrum	Rohde & Schwarz	FSP40	2010/09/17	2011/09/16

Measuring instrument setup in measured frequency band when specified detector function is used :

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	N/A
	Spectrum Analyzer	Peak	100 kHz	100 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	10Hz

4.4 Radiated Emission Data

4.4.1 5.8GHz Tx Portion

Model: TTA-A5805T

A) Ch Low

Operation Mode : Transmitting

Fundamental Frequency : 5760MHz

Test Date : Nov. 22, 2010 Temperature : 22 °C Humidity : 63 %

Frequency	Reading (dBuV)				Factor	Result @3m		Limit @3m		Margin	Table	Ant.
	H		V		(dB)	(dBuV/m)		(dBuV/m)		(dB)	Deg	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
5760.080	82.7	---	90.8	---	1.8	92.6	---	114.0	94.0	-1.4	96	1.60
11520.190	47.2	39.6	48.5	42.8	9.7	58.2	52.5	74.0	54.0	-1.5	54	1.30
17280.300	---	---	---	---	14.7	---	---	74.0	54.0	---	---	---
23040.410	---	---	---	---	10.6	---	---	74.0	54.0	---	---	---
28800.520	---	---	---	---	46.8	---	---	74.0	54.0	---	---	---
34560.630	---	---	---	---	49.5	---	---	74.0	54.0	---	---	---

Note :

1. *Item of margin shown in above table refer to average limit.*
2. *It is considered that the results of average comply with average limit when measuring data with a peak function detector meet the average limit. Mark "***" means that Peak result is meet average limit.*
3. *Remark "---" means that the emissions level is too low to be measured.*
4. *Item "Margin" referred to Average limit while there is only peak result.*
5. *The expanded uncertainty of the radiated emission tests is 3.53 dB.*

B) Ch Mid

Operation Mode : Transmitting

Fundamental Frequency : 5800MHz

Test Date : Nov. 22, 2010 Temperature : 22 °C Humidity : 63 %

Frequency	Reading (dBuV)				Factor	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin	Table	Ant.
	H		V		(dB)					(dB)	Deg	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
5800.096	79.6	---	90.4	---	1.9	92.3	---	114.0	94.0	-1.7	69	1.30
11600.080	47.7	42.2	48.2	42.7	9.7	57.9	52.4	74.0	54.0	-1.6	112	1.80
17400.064	---	---	---	---	15.5	---	---	74.0	54.0	---	---	---
23200.048	---	---	---	---	10.6	---	---	74.0	54.0	---	---	---
29000.032	---	---	---	---	46.8	---	---	74.0	54.0	---	---	---
34800.016	---	---	---	---	49.3	---	---	74.0	54.0	---	---	---

Note :

1. *Item of margin shown in above table refer to average limit.*
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3. *Remark "---" means that the emissions level is too low to be measured.*
4. *Item "Margin" referred to Average limit while there is only peak result.*
5. *The expanded uncertainty of the radiated emission tests is 3.53 dB.*
6. *Remark "*" means the local oscillator frequency.*

C) Ch Hi

Operation Mode : Transmitting

Fundamental Frequency : 5860MHz

Test Date : Nov. 22, 2010 Temperature : 22 °C Humidity : 63 %

Frequency	Reading (dBuV)				Factor	Result @3m		Limit @3m		Margin	Table	Ant.
	H		V		(dB)	(dBuV/m)		(dBuV/m)		(dB)	Deg	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
5860.100	82.2	---	90.2	---	2.0	92.2	---	114.0	94.0	-1.8	88	1.10
11720.180	47.6	41.8	48.2	42.3	9.7	57.9	52.0	74.0	54.0	-2.0	52	1.70
17580.260	---	---	---	---	16.4	---	---	74.0	54.0	---		
23440.340	---	---	---	---	10.6	---	---	74.0	54.0	---	---	---
29300.420	---	---	---	---	46.9	---	---	74.0	54.0	---	---	---
35160.500	---	---	---	---	48.9	---	---	74.0	54.0	---	---	---

Note :

1. *Item of margin shown in above table refer to average limit.*
2. *It is considered that the results of average comply with average limit when measuring data with a peak function detector meet the average limit. Mark "***" means that Peak result is meet average limit.*
3. *Remark "---" means that the emissions level is too low to be measured.*
4. *Item "Margin" referred to Average limit while there is only peak result.*
5. *The expanded uncertainty of the radiated emission tests is 3.53 dB.*
6. *Remark "*" means the local oscillator frequency.*

Model: TTA-B5805T

A) Ch Low

Operation Mode : Transmitting

Fundamental Frequency : 5760MHz

Test Date : Nov. 22, 2010 Temperature : 22 °C Humidity : 63 %

Frequency	Reading (dBuV)				Factor	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin	Table	Ant.
	H		V		(dB)					(dB)	Deg	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
5760.114	83.1	---	92.1	---	1.8	93.9	---	114.0	94.0	-0.1	87	1.50
11520.210	47.9	40.3	49.9	44.0	9.7	59.6	53.7	74.0	54.0	-0.3	56	1.40
17280.306	---	---	---	---	14.7	---	---	74.0	54.0	---	---	---
23040.402	---	---	---	---	10.6	---	---	74.0	54.0	---	---	---
28800.498	---	---	---	---	46.8	---	---	74.0	54.0	---	---	---
34560.594	---	---	---	---	49.5	---	---	74.0	54.0	---	---	---

Note :

1. *Item of margin shown in above table refer to average limit.*
2. *It is considered that the results of average comply with average limit when measuring data with a peak function detector meet the average limit. Mark "***" means that Peak result is meet average limit.*
3. *Remark "---" means that the emissions level is too low to be measured.*
4. *Item "Margin" referred to Average limit while there is only peak result.*
5. *The expanded uncertainty of the radiated emission tests is 3.53 dB.*

B) Ch Mid

Operation Mode : Transmitting

Fundamental Frequency : 5800MHz

Test Date : Nov. 22, 2010 Temperature : 22 °C Humidity : 63 %

Frequency	Reading (dBuV)				Factor	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin	Table	Ant.
	H		V		(dB)					(dB)	Deg	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
5800.110	80.3	---	91.6	---	1.9	93.5	---	114.0	94.0	-0.5	72	1.40
11600.165	48.0	42.3	48.6	43.0	9.7	58.3	52.7	74.0	54.0	-1.3	98	1.60
17400.220	---	---	---	---	15.5	---	---	74.0	54.0	---	---	---
23200.275	---	---	---	---	10.6	---	---	74.0	54.0	---	---	---
29000.330	---	---	---	---	46.8	---	---	74.0	54.0	---	---	---
34800.385	---	---	---	---	49.3	---	---	74.0	54.0	---	---	---

Note :

1. *Item of margin shown in above table refer to average limit.*
2. *It is considered that the results of average comply with average limit when measuring data with a peak function detector meet the average limit. Mark "***" means that Peak result is meet average limit.*
3. *Remark "---" means that the emissions level is too low to be measured.*
4. *Item "Margin" referred to Average limit while there is only peak result.*
5. *The expanded uncertainty of the radiated emission tests is 3.53 dB.*
6. *Remark "*" means the local oscillator frequency.*

C) Ch Hi

Operation Mode : Transmitting

Fundamental Frequency : 5860MHz

Test Date : Nov. 22, 2010 Temperature : 22 °C Humidity : 63 %

Frequency	Reading (dBuV)				Factor	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin	Table	Ant.
	H		V		(dB)					(dB)	Deg	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
5860.060	81.9	---	90.3	---	2.0	92.3	---	114.0	94.0	-1.7	55	1.60
11720.110	48.0	41.9	48.7	42.6	9.7	58.4	52.3	74.0	54.0	-1.7	87	1.70
17580.160	---	---	---	---	16.4	---	---	74.0	54.0	---		
23440.210	---	---	---	---	10.6	---	---	74.0	54.0	---	---	---
29300.260	---	---	---	---	46.9	---	---	74.0	54.0	---	---	---
35160.310	---	---	---	---	48.9	---	---	74.0	54.0	---	---	---

Note :

1. *Item of margin shown in above table refer to average limit.*
2. *It is considered that the results of average comply with average limit when measuring data with a peak function detector meet the average limit. Mark "***" means that Peak result is meet average limit.*
3. *Remark "---" means that the emissions level is too low to be measured.*
4. *Item "Margin" referred to Average limit while there is only peak result.*
5. *The expanded uncertainty of the radiated emission tests is 3.53 dB.*
6. *Remark "*" means the local oscillator frequency.*

4.4.2 433.92MHz Rx Portion

Model: TTA-A5805T

Operation Mode : Receiving

Fundamental Frequency : 433.900 MHz (Local oscillation)

Test Date : Nov. 22, 2010 Temperature : 22°C Humidity : 63%

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
433.900	H	37.0	-5.5	31.5	46.0	-14.5	77	1.7
867.800	H/V	---	2.3	---	46.0	---	---	---
1301.700	H/V	---	-8.4	---	54.0	---	---	---
1735.600	H/V	---	-6.1	---	54.0	---	---	---
2169.500	H/V	---	-4.0	---	54.0	---	---	---
2603.400	H/V	---	-2.4	---	54.0	---	---	---
3037.300	H/V	---	-1.1	---	54.0	---	---	---
3471.200	H/V	---	-0.1	---	54.0	---	---	---
3905.100	H/V	---	1.6	---	54.0	---	---	---
4339.000	H/V	---	2.0	---	54.0	---	---	---

Model: TTA-B5805T

Operation Mode : Receiving

Fundamental Frequency : 433.900 MHz (Local oscillation)

Test Date : Nov. 22, 2010 Temperature : 22°C Humidity : 63%

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
433.900	H	25.7	-5.5	31.2	46.0	-14.8	69	1.8
867.800	H/V	---	2.3	---	46.0	---	---	---
1301.700	H/V	---	-8.4	---	54.0	---	---	---
1735.600	H/V	---	-6.1	---	54.0	---	---	---
2169.500	H/V	---	-4.0	---	54.0	---	---	---
2603.400	H/V	---	-2.4	---	54.0	---	---	---
3037.300	H/V	---	-1.1	---	54.0	---	---	---
3471.200	H/V	---	-0.1	---	54.0	---	---	---
3905.100	H/V	---	1.6	---	54.0	---	---	---
4339.000	H/V	---	2.0	---	54.0	---	---	---

Note :

1. Remark "---" means that the emissions level is too low to be measured.

2. The expanded uncertainty of the radiated emission tests is 3.53 dB.

4.4.3 Other Emissions

a) Emission frequencies below 1 GHz

Model: TTA-A5805T

Operation Mode : Transmitting

Test Date : Nov. 18, 2010 Temperature : 23 °C Humidity : 65 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
148.53	V	7.8	14.5	22.3	43.5	-21.2	241	1.0
181.74	V	7.0	16.6	23.6	43.5	-19.9	143	1.0
220.89	V	7.0	18.7	25.7	46.0	-20.3	316	1.0
237.90	H	7.3	19.6	26.9	46.0	-19.1	47	1.5
255.18	V	6.9	20.5	27.4	46.0	-18.6	147	1.0
272.46	H	6.0	22.6	28.6	46.0	-17.4	5	1.4

b) Emission frequencies below 1 GHz

Model: TTA-B5805T

Operation Mode : Transmitting

Test Date : Nov. 18, 2010 Temperature : 23 °C Humidity : 65 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
170.13	H	13.4	15.0	28.4	43.5	-15.1	262	1.2
195.78	H	6.4	18.2	24.6	43.5	-18.9	175	1.3
224.13	H	5.7	18.9	24.6	46.0	-21.4	249	1.4
237.90	V	6.1	19.6	25.7	46.0	-20.3	146	1.0
254.37	H	6.6	20.5	27.1	46.0	-18.9	23	1.3
275.97	H	5.3	23.0	28.3	46.0	-17.7	108	1.4

Note :

1. Remark "---" means that the emission level is too low to be measured.
2. The expanded uncertainty of the radiated emission tests is 3.53 dB.

c) Emission frequencies above 1 GHz

Radiated emission frequencies above 1 GHz to 5 GHz were too low to be measured with a pre-amplifier of 35 dB.

4.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, High Pass Filter Loss(if used) and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

where Corrected Factor

= Antenna FACTOR + Cable Loss + High Pass Filter Loss - Amplifier Gain

4.6 Photos of Radiation Measuring Setup

Model: TTA-A5805T

Model: TTA-B5805T

5 CONDUCTED EMISSION MEASUREMENT

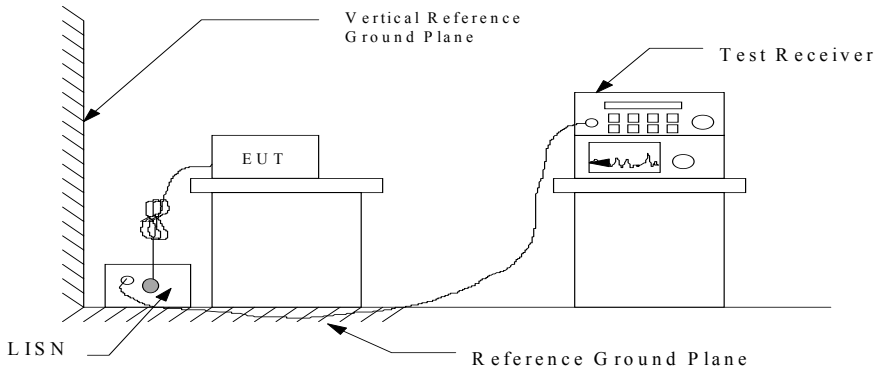
5.1 Standard Applicable

For unintentional and intentional device, Line Conducted Emission Limits are in accordance to §15.107(a) and §15.207(a) respectively.

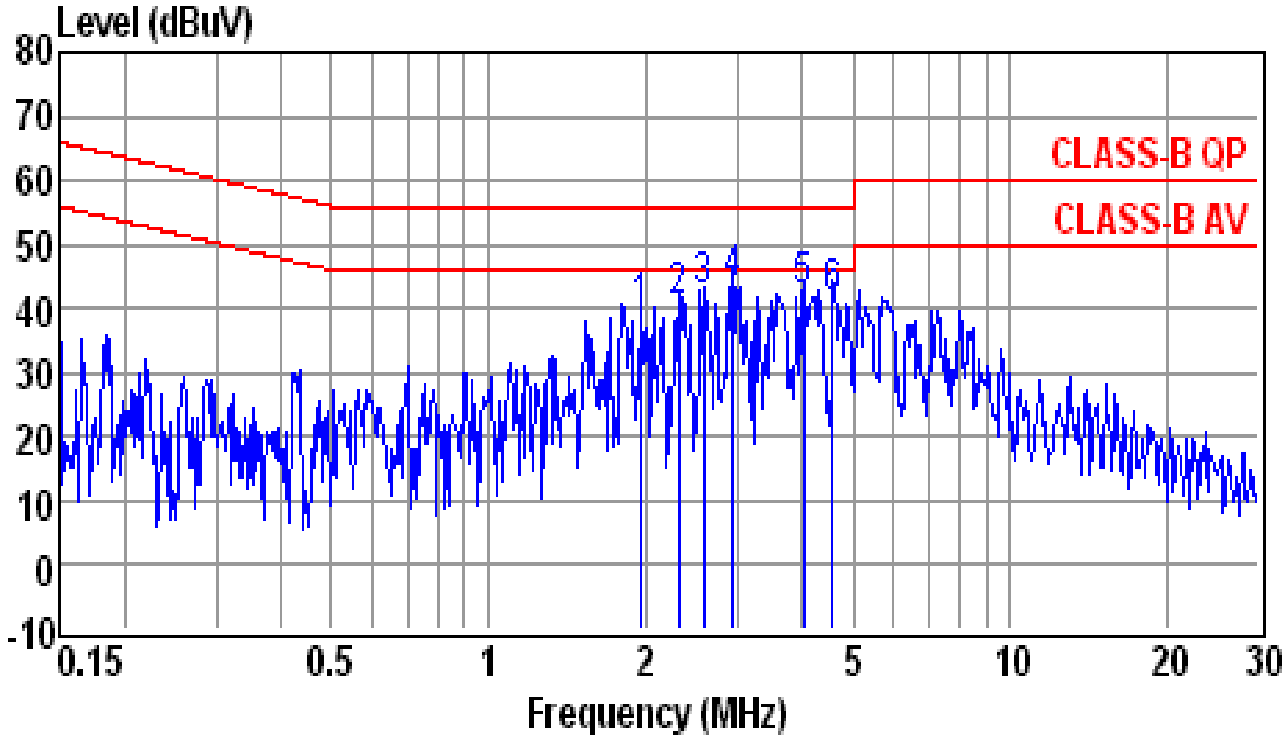
5.2 Measurement Procedure

1. Setup the configuration per figure 3.
2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.
3. Record the 6 or 8 highest emissions relative to the limit.
4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then records the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.
5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.
6. Repeat all above procedures on measuring each operation mode of EUT.

Figure 3 : Conducted emissions measurement configuration



5.3 Conducted Emission Data

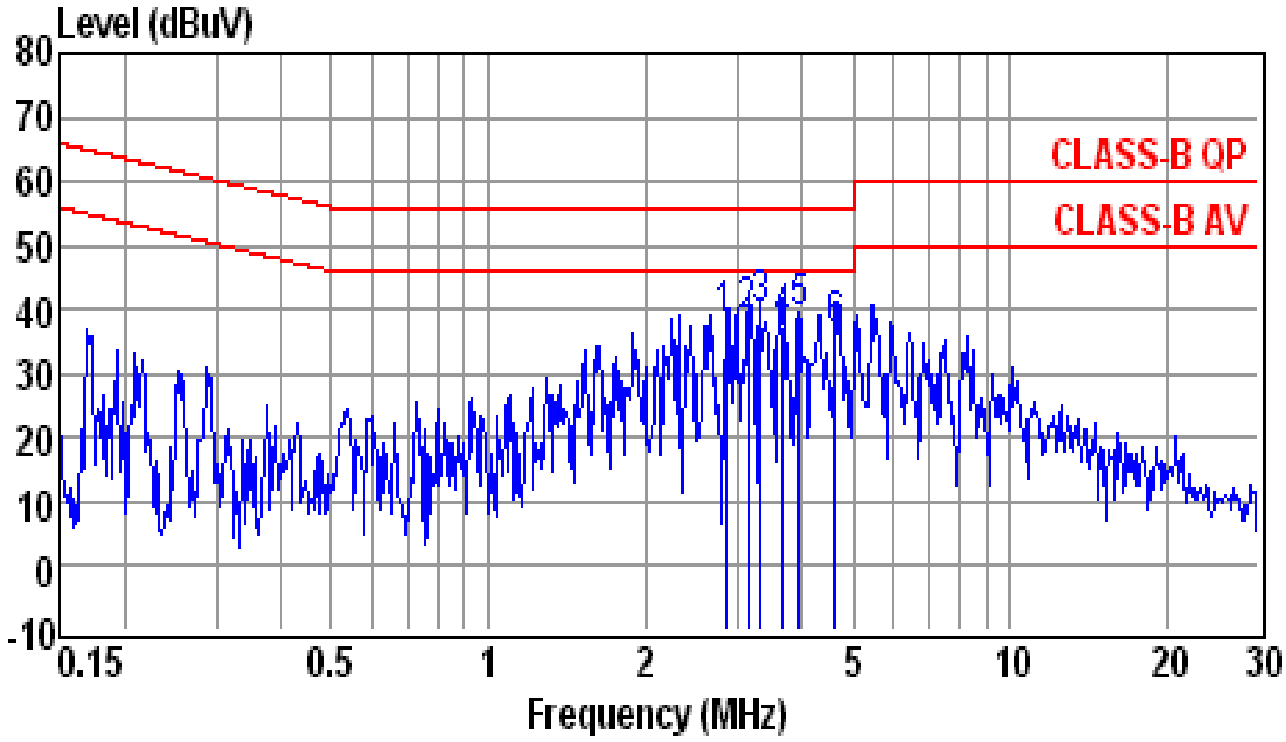


Site	: conducted #1	Date	: 11-22-2010
Condition	: CLASS-B QP	LISN	: NEUTRAL
Tem / Hum	: 26 ℃ / 66%	Test Mode	: TRANSMITTER
EUT	: TTA-A5805T	Power Rating	:
Memo	:	Memo	:

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
1.9700	38.61	0.36	38.97	56.00	-17.03	QP
2.3210	40.01	0.38	40.39	56.00	-15.61	QP
2.5940	41.81	0.39	42.20	56.00	-13.80	QP
2.9460	42.80	0.41	43.21	56.00	-12.79	QP
4.0270	41.85	0.45	42.30	56.00	-13.70	QP
4.5740	40.83	0.48	41.31	56.00	-14.69	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

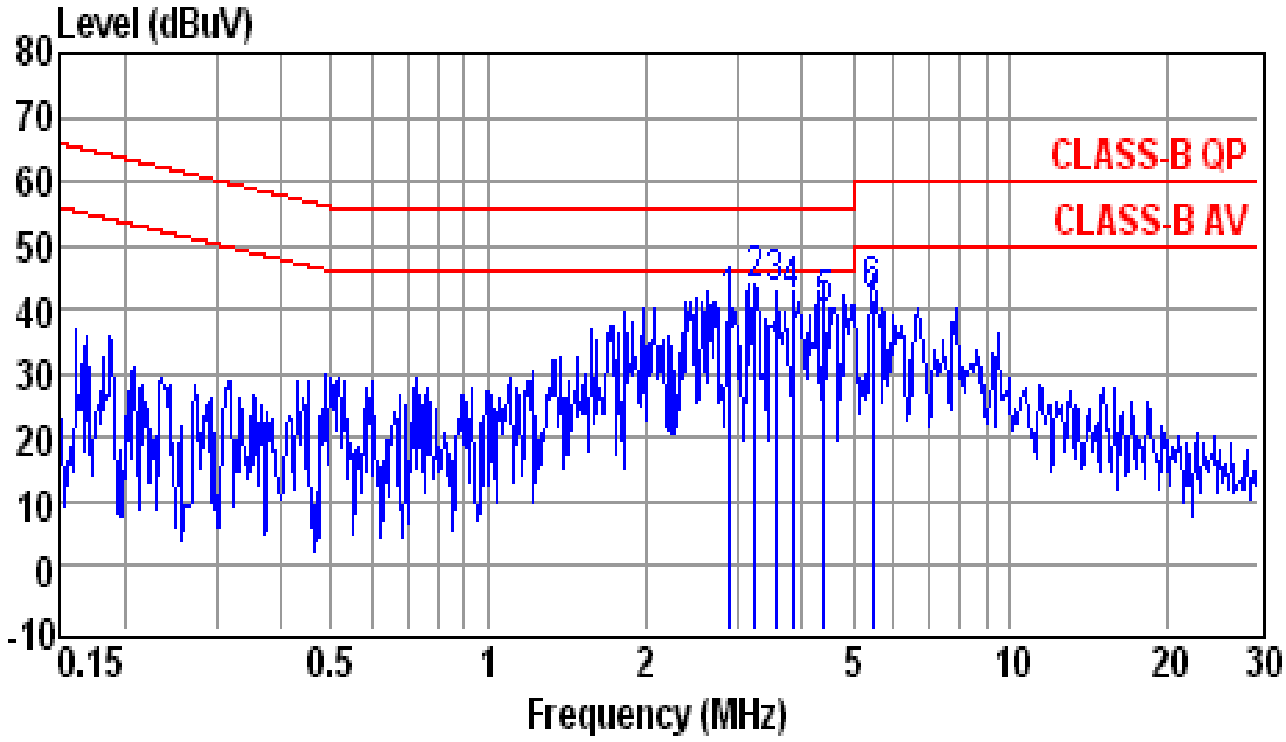


Site	: conducted #1	Date	: 11-22-2010
Condition	: CLASS-B QP	LISN	: LINE
Tem / Hum	: 26 ℃ / 66%	Test Mode	: TRANSMITTER
EUT	: TTA-A5805T	Power Rating	:
Memo	:	Memo	:

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
2.8540	37.43	0.41	37.84	56.00	-18.16	QP
3.1400	38.04	0.42	38.46	56.00	-17.54	QP
3.3280	39.35	0.42	39.77	56.00	-16.23	QP
3.6610	37.15	0.44	37.59	56.00	-18.41	QP
3.9430	38.49	0.45	38.94	56.00	-17.06	QP
4.6220	35.77	0.48	36.25	56.00	-19.75	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

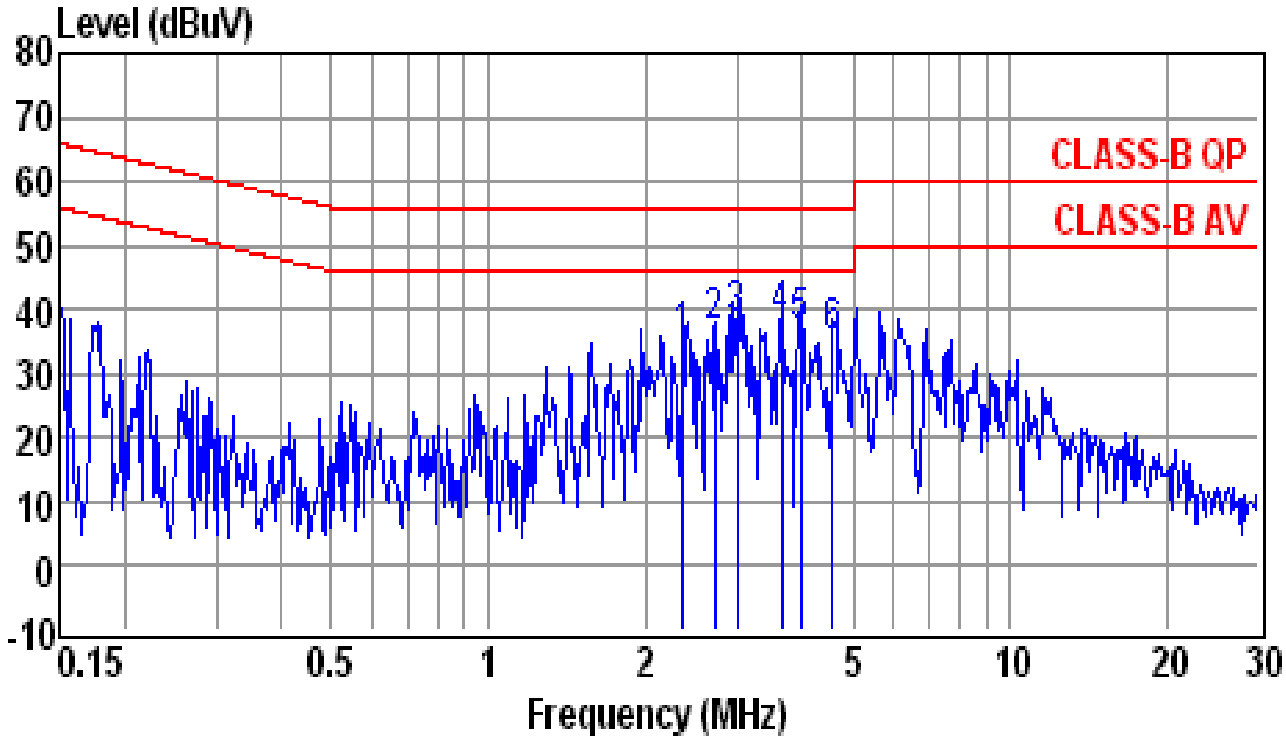


Site	: conducted #1	Date	: 11-22-2010
Condition	: CLASS-B QP	LISN	: NEUTRAL
Tem / Hum	: 26 ℃ / 66%	Test Mode	: TRANSMITTER
EUT	: TTA-B5805T	Power Rating	:
Memo	:	Memo	:

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
2.9000	39.81	0.57	40.38	56.00	-15.62	QP
3.2410	42.96	0.59	43.55	56.00	-12.45	QP
3.5650	41.97	0.61	42.58	56.00	-13.42	QP
3.8400	41.37	0.63	42.00	56.00	-14.00	QP
4.4070	38.99	0.67	39.66	56.00	-16.34	QP
5.4470	41.19	0.72	41.91	60.00	-18.09	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss



Site	: conducted #1	Date	: 11-22-2010
Condition	: CLASS-B QP	LISN	: LINE
Tem / Hum	: 26 ℃ / 66%	Test Mode	: TRANSMITTER
EUT	: TTA-B5805T	Power Rating	:
Memo	:	Memo	:

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
2.3580	34.46	0.38	34.84	56.00	-21.16	QP
2.7210	36.60	0.40	37.00	56.00	-19.00	QP
2.9930	37.72	0.41	38.13	56.00	-17.87	QP
3.6420	37.28	0.44	37.72	56.00	-18.28	QP
3.9640	36.46	0.45	36.91	56.00	-19.09	QP
4.5740	34.88	0.48	35.36	56.00	-20.64	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

5.4 Result Data Calculation

The result data is calculated by adding the LISN Factor to the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + LISN FACTOR

Assume a receiver reading of 22.5 dBμV is obtained, and LISN Factor is 0.1 dB, then the total of disturbance voltage is 22.6 dBμV.

RESULT = 22.5 + 0.1 = 22.6 dBμV
Level in μV = Common Antilogarithm[(22.6 dBμV)/20]
= 13.48 μV

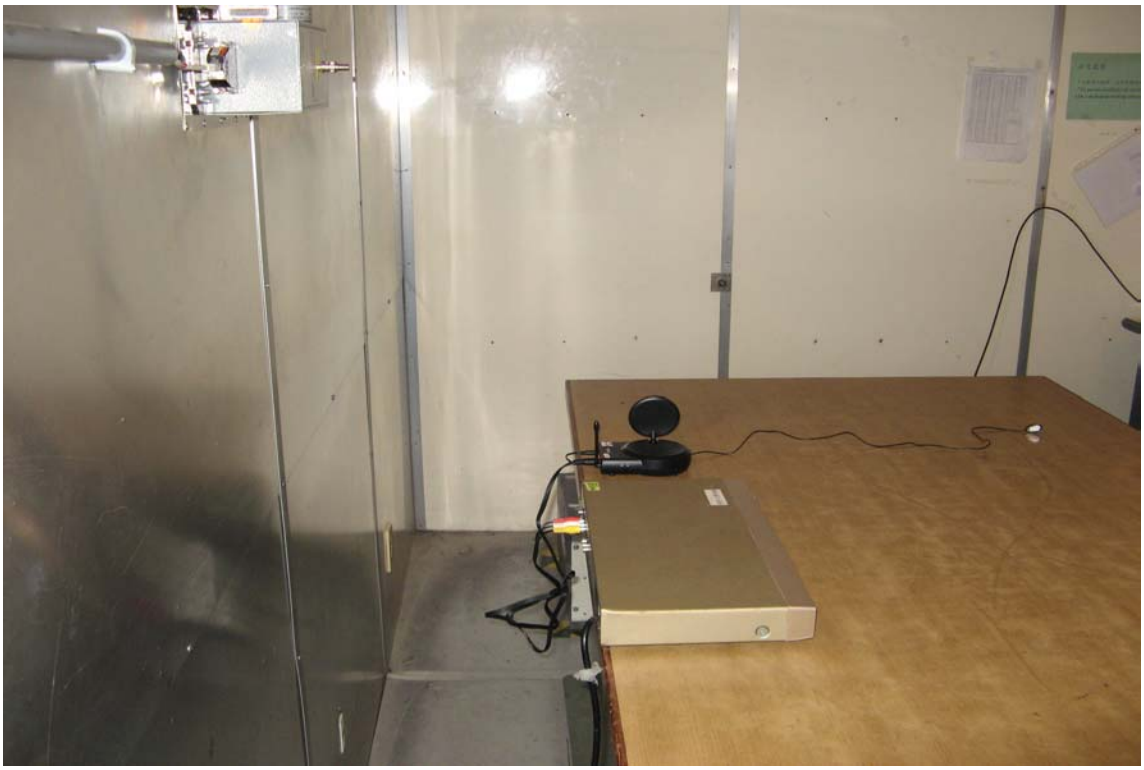
5.5 Conducted Measurement Equipment

The following test equipment are used during the conducted test .

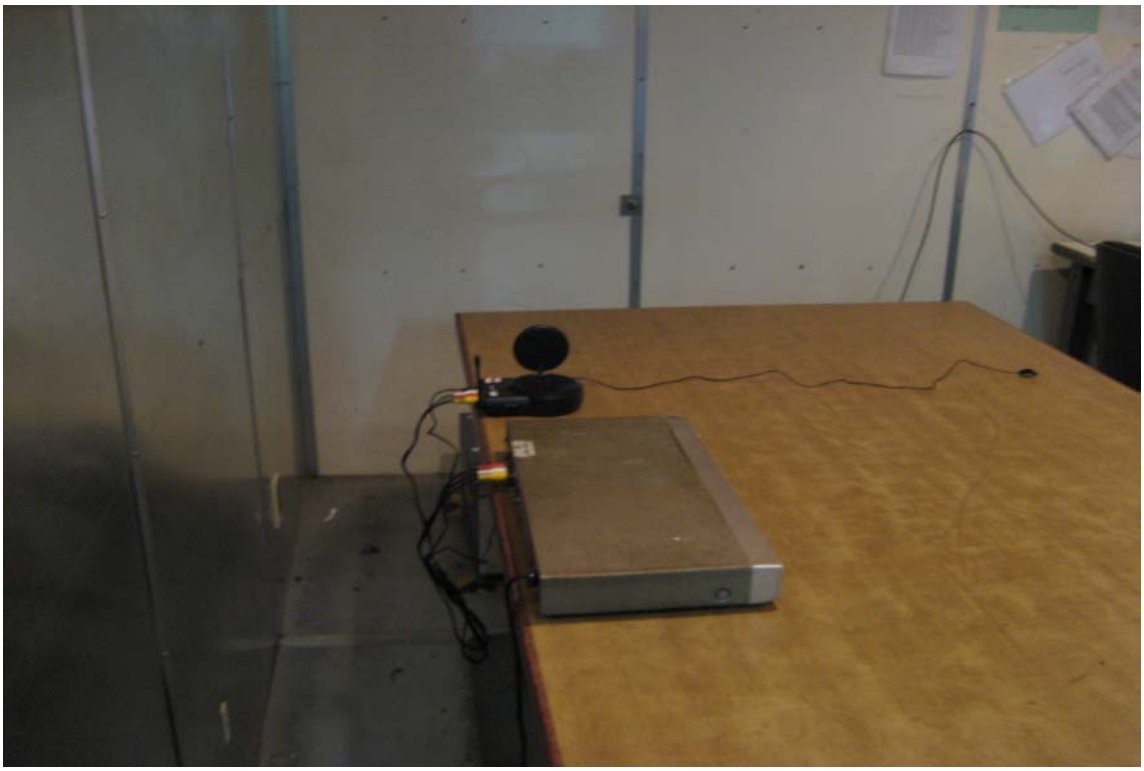
Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCI	2010/02/03	2011/02/02
LISN	EMCO	3825/2	2010/09/17	2011/09/16
LISN	Rohde & Schwarz	ESH2-Z5	2010/08/10	2011/08/09

5.6 Photos of Conduction Measuring Setup

Model: TTA-A5805T



Model: TTA-B5805T



6 ANTENNA REQUIREMENT

6.1 Standard Applicable

According to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

6.2 Antenna Construction

The antenna is integrated on the device. No consideration of replacement. Please refer to the construction Photo for details.

7 BANDWIDTH MEASUREMENT

7.1 Standard Applicable

For reporting purpose only.

7.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. Use the following spectrum analyzer settings:
   Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel
   RBW ≥ 1% of the 20 dB bandwidth
   VBW ≥ RBW
   Sweep = auto
   Detector function = peak
   Trace = max hold
4. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth of the emission. Plot the result on the screen of spectrum analyzer.
5. Repeat above procedures until all frequencies measured were complete.

7.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP40	2010/09/17	2011/09/16

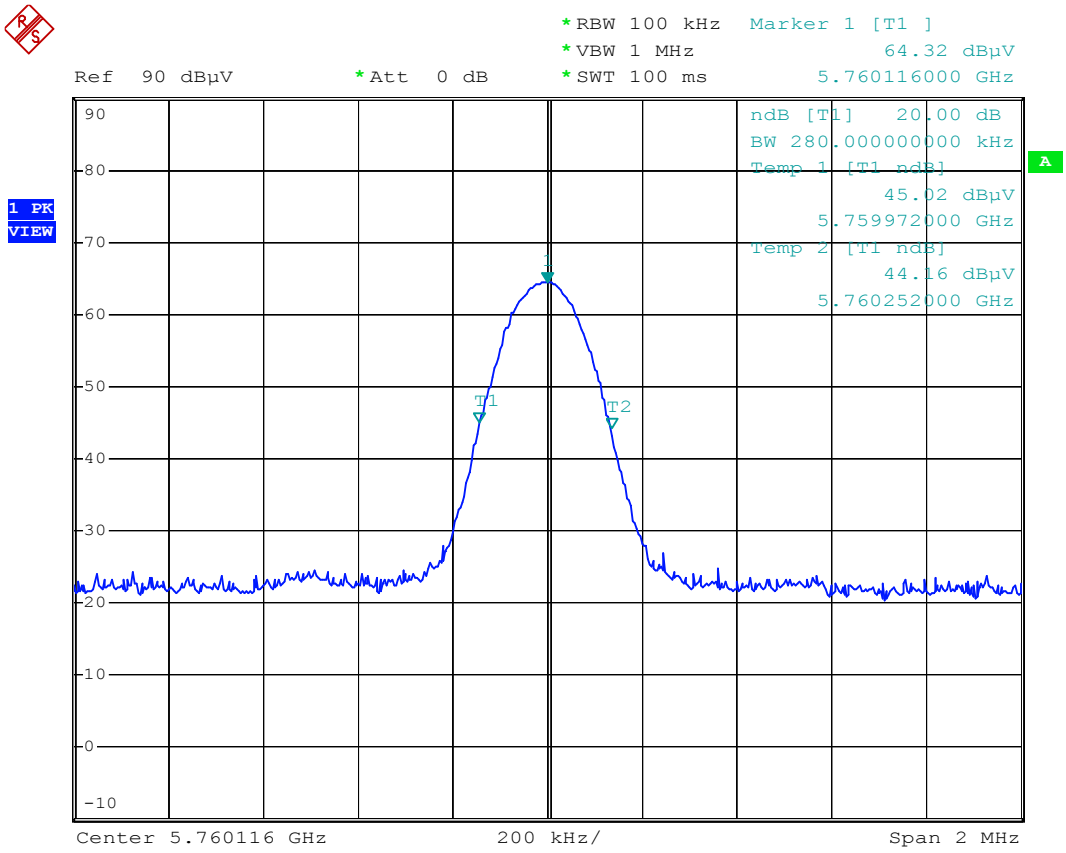
7.4 Measurement Data

Test Date : Dec. 21, 2010 Temperature : 25 °C Humidity : 55 %

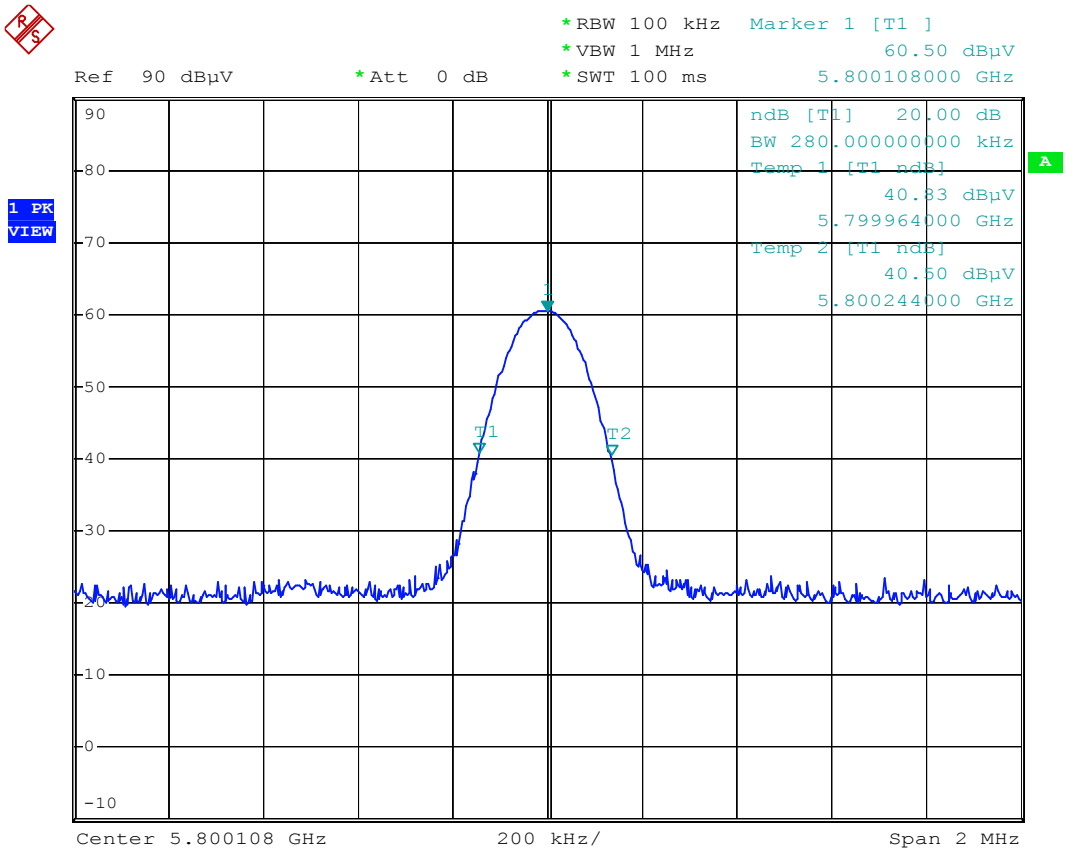
a) Channel Low : Channel Bandwidth is 0.280 MHz
b) Channel Middle : Channel Bandwidth is 0.280 MHz
c) Channel High : Channel Bandwidth is 0.280 MHz

Note : The expanded uncertainty of channel bandwidth tests is 1000Hz.

Lower channel



Middle channel



Upper channel