RADIO TEST REPORT

Report Reference No. ..... :	NTEK-2012DG0509033F	
Compiled by (+ signature).....	Tom Zhang	Tom Zhang
Approved by (+ signature).....	Bovey Yang	..... Bovey Yang .....

Applicant's name.....:	SHANGHAI SHUNCOM ELECTRONIC TECHNOLOGY CO.,LTD
Address ..... :	502 Room, 4 Building, No.289, Bisheng Road, Pudong New Area, Shanghai, China
Manufacture's Name.....:	SHANGHAI SHUNCOM ELECTRONIC TECHNOLOGY CO.,LTD
Address ..... :	502 Room, 4 Building, No.289, Bisheng Road, Pudong New Area, Shanghai, China

Test specification:	
Standard ..... :	FCC Part 15.247
Test procedure ..... :	ANSI C63.4 : 2003, KDB 558074(DTS)
FCC ID ..... :	N2PSZ05-ADV
Test item description	
Product name.....:	Wireless Communication Modules For Data Acquisition And Transmission
Trademark .....:	SHUNCOM
Model and/or type reference :	SZ05-ADV
Rating(s).....:	DC 5V

Testing Laboratory information:	
Testing Laboratory Name .....:	NTEK Testing Technology Co., Ltd
Address .....:	1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao ' an District, Shenzhen P.R. China.

This device described above has been tested by NTEK Testing Technology Co., Ltd, and 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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Testing..... :	
Date of receipt of test item..... :	28 Apr. 2012
Date (s) of performance of tests..... :	29 Apr. 2012 ~09 May 2012
Date of Issue ..... :	09 May 2012
Test Result ..... :	**Pass**

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (c)	Antenna conducted Spurious Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (d)	Power Spectral Density	PASS	
15.203	Antenna Requirement	PASS	
1.1307 1.1310 2.1091 2.1093	RF Exposure Compliance	PASS	

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd
Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.
FCC FRN Registration Nombre:238937; IC Registration Nombre:9270A-1
CNAS Registration Nombre:L5516

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	Conducted Emission Test	±1.38dB
2	Radiated Emission Test	±3.17dB
3	RF power,conducted	±0.16dB
4	Spurious emissions,conducted	±0.21dB
5	All emissions,radiated(<1G)	±4.68dB
6	All emissions,radiated(>1G)	±4.89dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>Wireless Communication Modules For Data Acquisition And Transmission</td></tr>
<tr><td>Trade Name</td><td>SHUNCOM</td></tr>
<tr><td>Model Name</td><td>SZ05-ADV</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>OEM Brand/Model Name</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>The EUT is a Wireless Communication Modules.
<table>
<tr><td>Operation Frequency:</td><td>2405-2480MHz</td></tr>
<tr><td>Modulation Type:</td><td>O-QPSK/DSSS</td></tr>
<tr><td>Number Of Channel</td><td>16 CH, Please see Note 2.</td></tr>
<tr><td>Antenna Gain(Peak)</td><td>3dBi</td></tr>
<tr><td>Antenna type</td><td>SMA antenna(antispindirection antenna)</td></tr>
<tr><td>Output Power:</td><td>10.78dBm</td></tr>
</table>
Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Channel List</td><td>Please refer to the Note 2.</td></tr>
<tr><td>Power Source</td><td>DC Voltage supply</td></tr>
<tr><td>Power Rating</td><td>DC 5V</td></tr>
<tr><td>Connecting I/O Port(s)</td><td>Please refer to the User's Manual</td></tr>
<tr><td>Products Covered</td><td>N/A</td></tr>
<tr><td>EUT Modification(s)</td><td>N/A</td></tr>
</table>

Note:

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

2.

channel	Frequency (MHz)	channel	Frequency (MHz)
1	2405	9	2445
2	2410	10	2450
3	2415	11	2455
4	2420	12	2460
5	2425	13	2465
6	2430	14	2470
7	2435	15	2475
8	2440	16	2480

2.2 DESCRIPTION OF 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.

Pretest Mode	Description
Mode 1	CH 1
Mode 2	CH 9
Mode 3	CH 16

For Conducted Emission	
Final Test Mode	Description
N/A	N/A

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH 1
Mode 2	CH 9
Mode 3	CH 16

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.
(2) The measurements are performed at all Bit Rate of Transmitter, the highest Bit Rate of Transmitter was the worst data, and was shown.

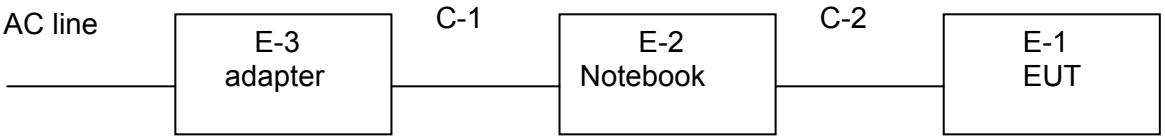
2.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters.

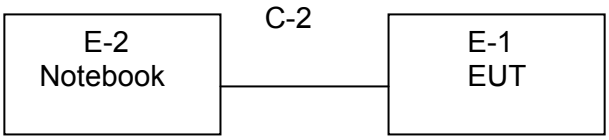
Test software Version	Test program: N/A		
Frequency	2405 MHz	2445 MHz	2480 MHz

2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

CE



RE



2.5 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	Wireless Communication Modules For Data Acquisition And Transmission	SHUNCOM	SZ05-ADV	N2PSZ05-ADV	N/A	EUT
E-2	Notebook	IBM	2366	N/A		
E-3	adapter	IBM	08K8202	N/A		

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	YES	150cm	
C-2	NO	NO	120cm	

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.

2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Agilent	E4407B	160400005	Jul. 06. 2012
2	Test Receiver	R&S	ESPI	101318	Jul. 06. 2012
3	Bilog Antenna	TESEQ	CBL6111D	31216	Jul. 06. 2012
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	Jul. 06. 2012
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	Jul. 06. 2012
6	Horn Antenna	EM	EM-AH-10180	2011071402	Jul. 06. 2012
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	Jul. 06. 2012
8	Amplifier	EM	EM-30180	060538	Jul. 06. 2012
9	Loop Antenna	ARA	PLA-1030/B	1029	Jul. 06. 2012
10	Power Meter	R&S	NRVS	100696	Jul. 06. 2012
11	Communication Tester	R&S	CMU200	A0304247	Jul. 06. 2012
12	Power Splitter	Agilent	11636A	N/A	Jul. 06. 2012

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Test Receiver	R&S	ESCI	101160	Jul. 06. 2012
2	LISN	R&S	ENV216	101313	Jul. 06. 2012
3	LISN	EMCO	3816/2	00042990	Jul. 06. 2012
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	Jul. 06. 2012
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	Jul. 06. 2012
6	Absorbing clamp	R&S	MOS-21	100423	Jul. 06. 2012

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

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.

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

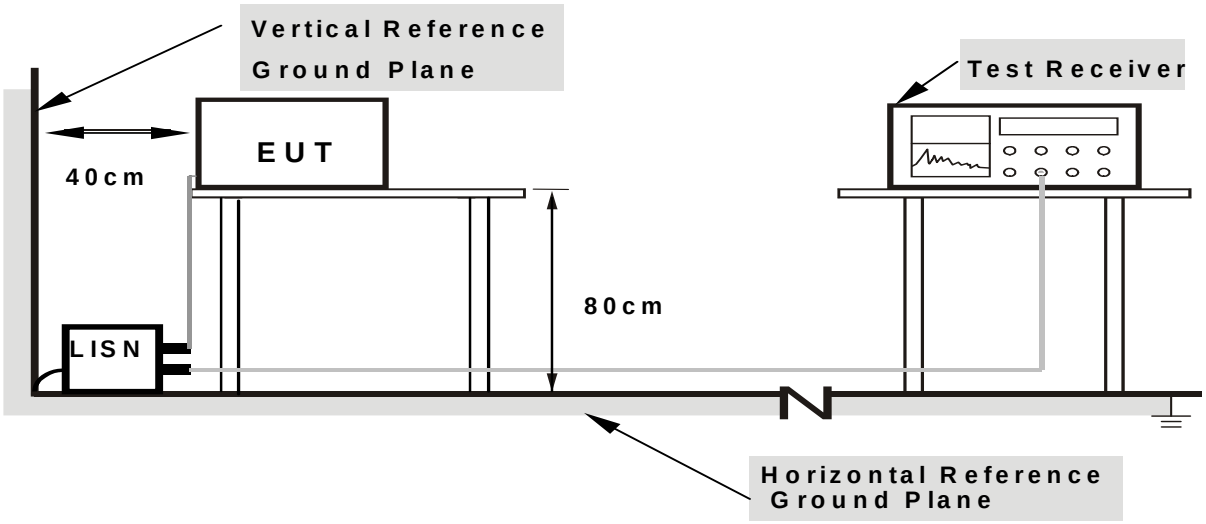
3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal 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.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 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

3.1.5 EUT OPERATING CONDITIONS

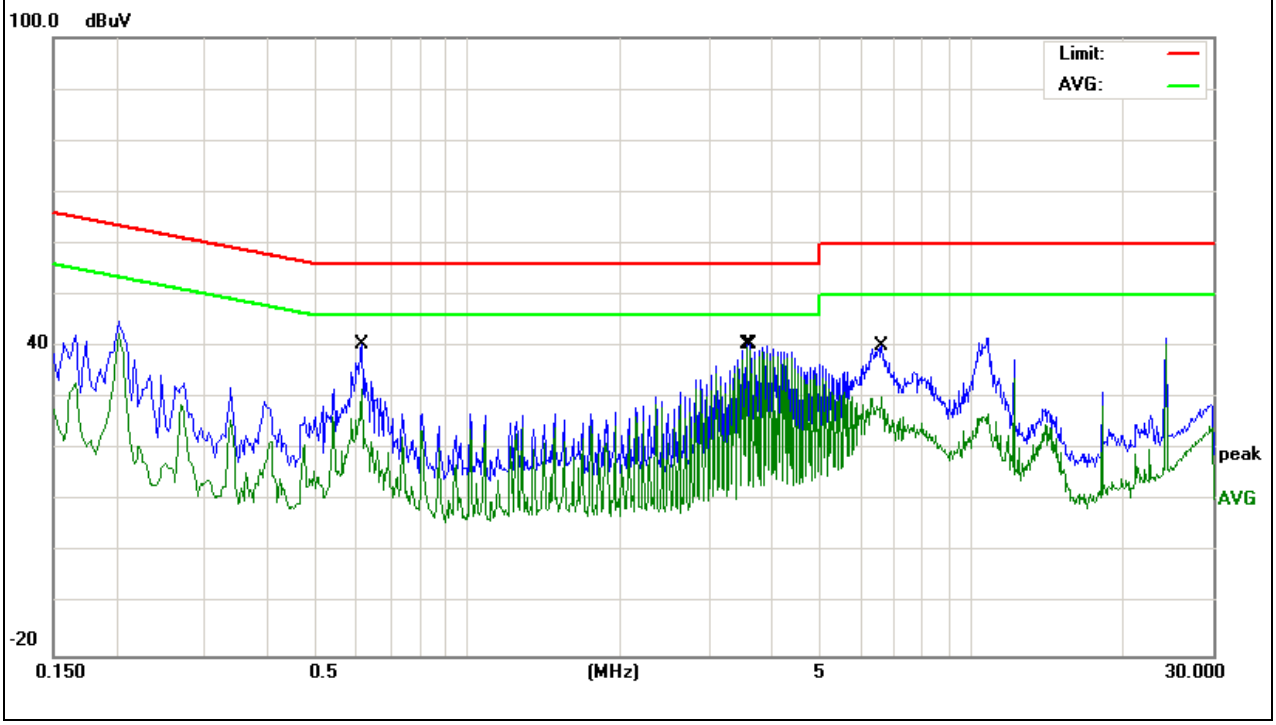
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.6 TEST RESULTS

EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2012-05-08
Test Mode：	TX	Phase：	L
Test Voltage ：	DC 5V from PC AC 230V/50Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
0.614	29.91	10.41	40.32	56	-15.68	QP
0.614	21.32	10.41	31.73	46	-14.27	AVG
3.57	29.13	10.61	39.74	46	-6.26	AVG
3.638	29.9	10.61	40.51	56	-15.49	QP
6.60	19.44	10.66	30.1	50	-19.9	AVG
6.60	29.4	10.66	40.06	60	-19.94	QP

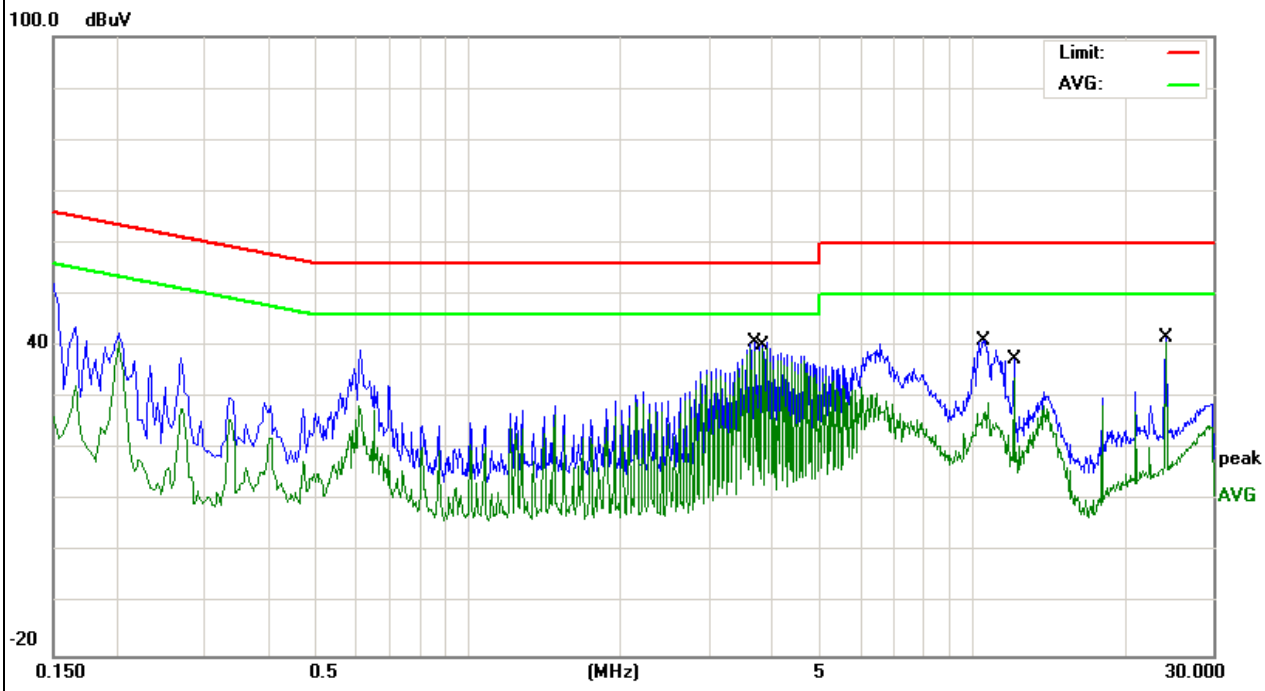
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2012-05-08
Test Mode：	TX	Phase：	N
Test Voltage ：	DC 5V from PC AC 230V/50Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
3.702	30.01	10.65	40.66	56	-15.34	QP
3.838	28.86	10.66	39.52	46	-6.48	AVG
10.534	30.5	10.66	41.16	60	-18.84	QP
12.082	23.03	10.71	33.74	50	-16.26	AVG
24.17	30.96	10.77	41.73	60	-18.27	QP
24.17	29.87	10.77	40.64	50	-9.36	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. N/A means All Data have pass Limit



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3M)		Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

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

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

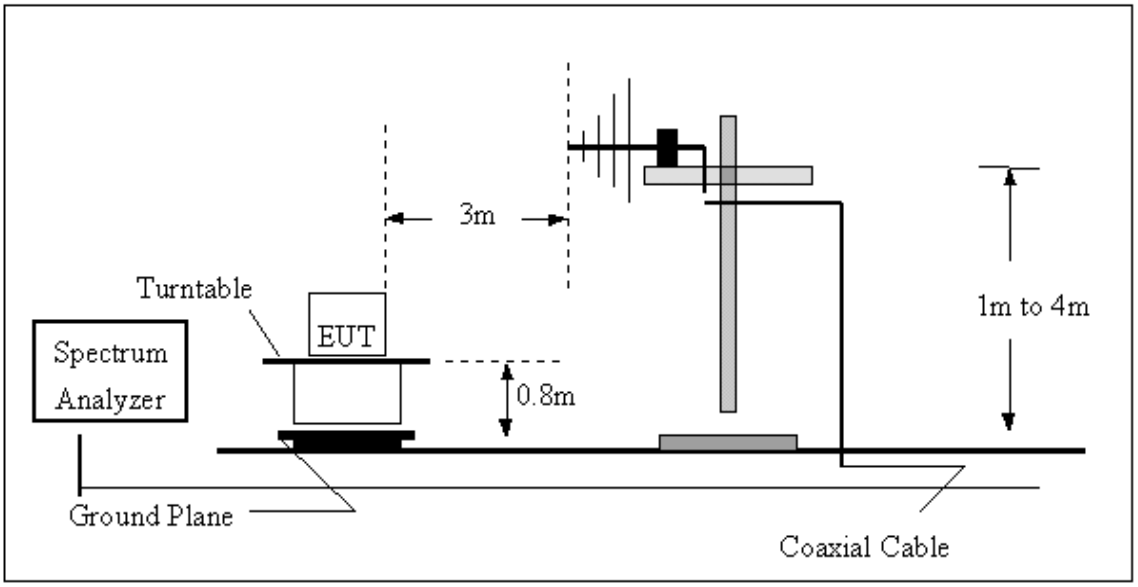
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.3 DEVIATION FROM TEST STANDARD

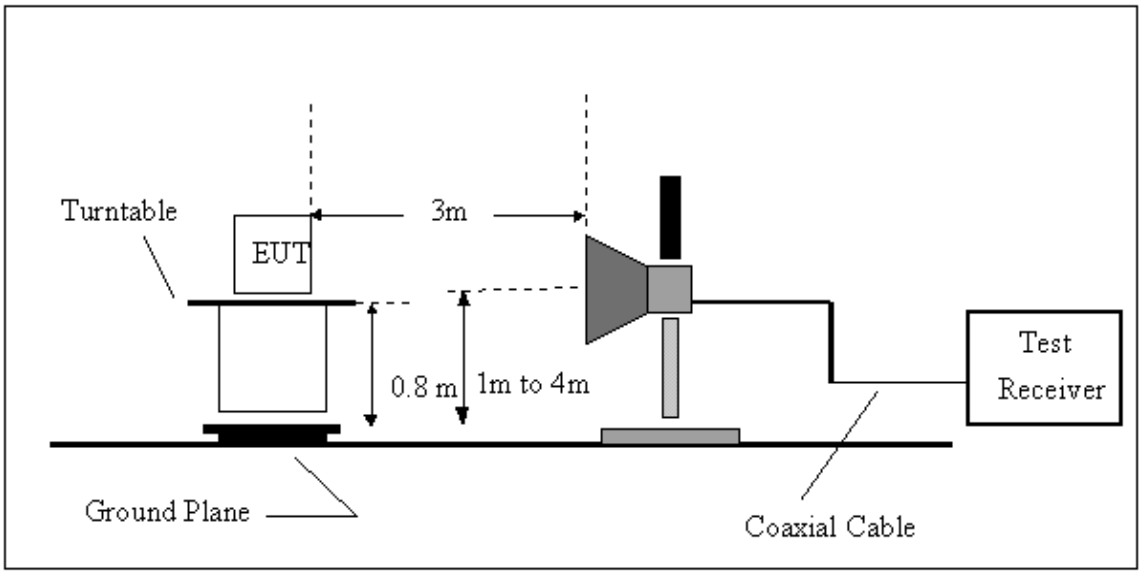
No deviation

3.2.4 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	TX	Polarization：	Horizontal

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

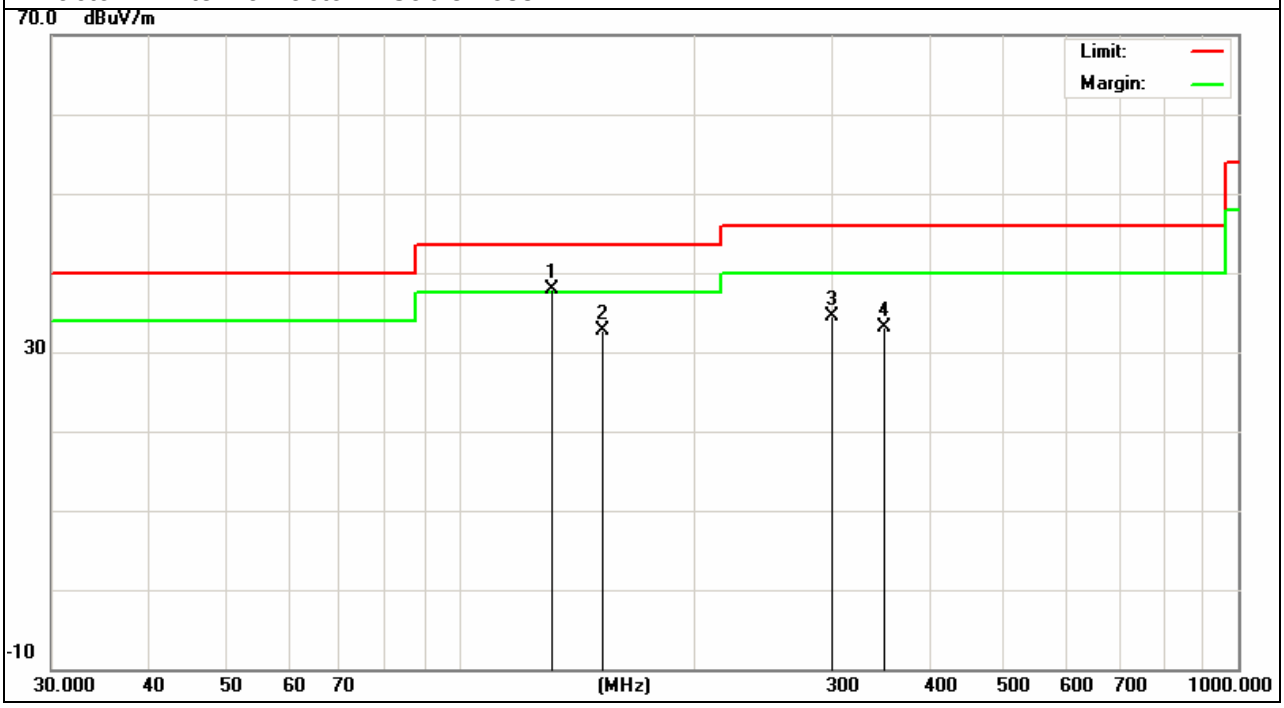
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =20 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (BETWEEN 30 – 1000 MHZ)

EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	TX	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
131.2100	26.00	11.93	37.93	43.50	-5.57	Quasi-Peak
152.6700	21.21	11.54	32.75	43.50	-10.75	Quasi-Peak
300.3300	19.92	14.57	34.49	46.00	-11.51	Quasi-Peak
351.2100	17.77	15.40	33.17	46.00	-12.83	Quasi-Peak

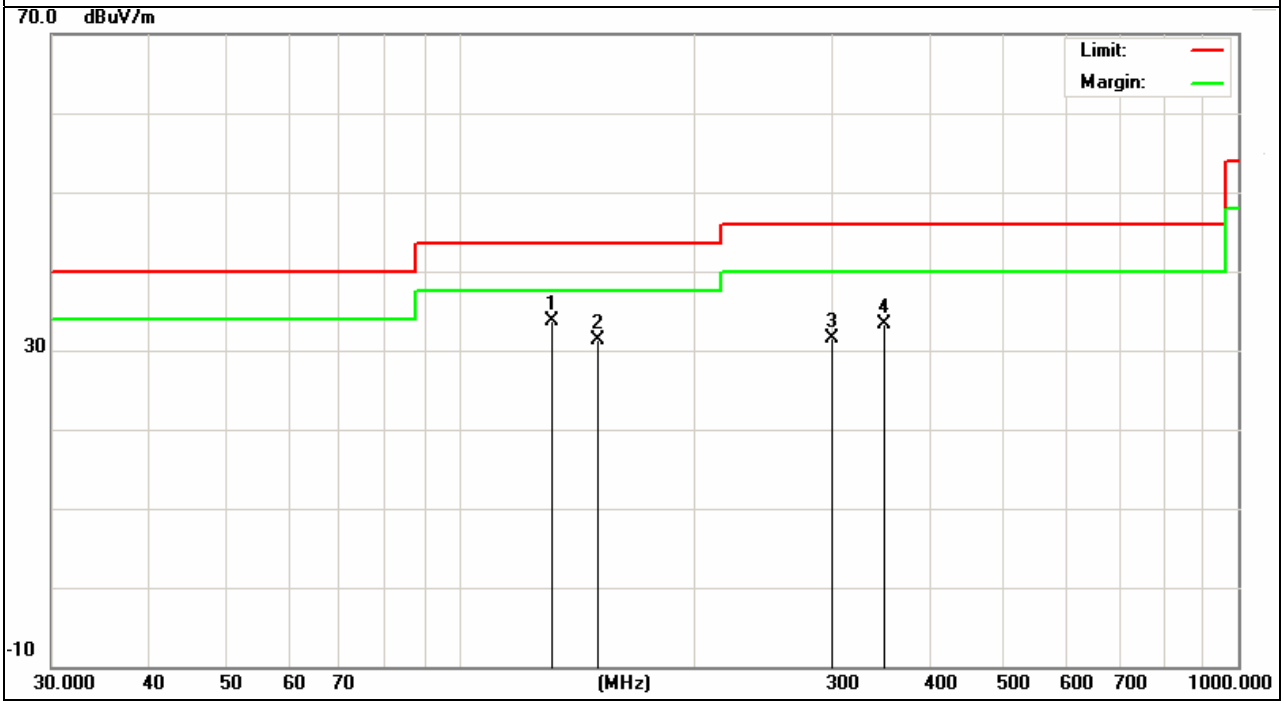
Remark:
1. Factor = Antenna Factor + Cable Loss.



EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	TX	Polarization：	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
131.2100	21.77	11.93	33.70	43.50	-9.80	Quasi-Peak
149.5200	19.43	11.79	31.22	43.50	-12.28	Quasi-Peak
300.3300	17.01	14.57	31.58	46.00	-14.42	Quasi-Peak
351.2100	17.99	15.40	33.39	46.00	-12.61	Quasi-Peak

Remark:
1. Factor = Antenna Factor + Cable Loss.

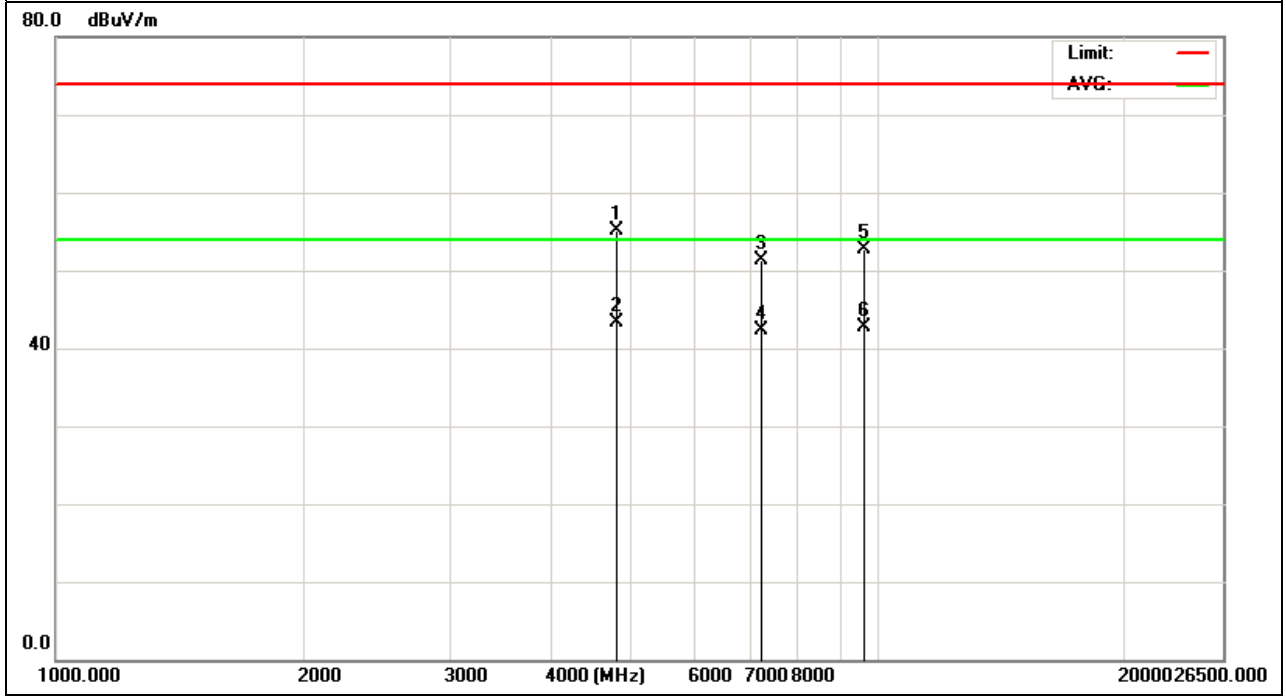


3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	CH1	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4810.2	58.69	-3.63	55.06	74	-18.94	peak
4810.2	46.98	-3.63	43.35	54	-10.65	AVG
7215.15	52.19	-0.97	51.22	74	-22.78	peak
7215.15	43.18	-0.97	42.21	54	-11.79	AVG
9620.33	50.78	1.93	52.71	74	-21.29	peak
9620.33	40.69	1.93	42.62	54	-11.38	AVG

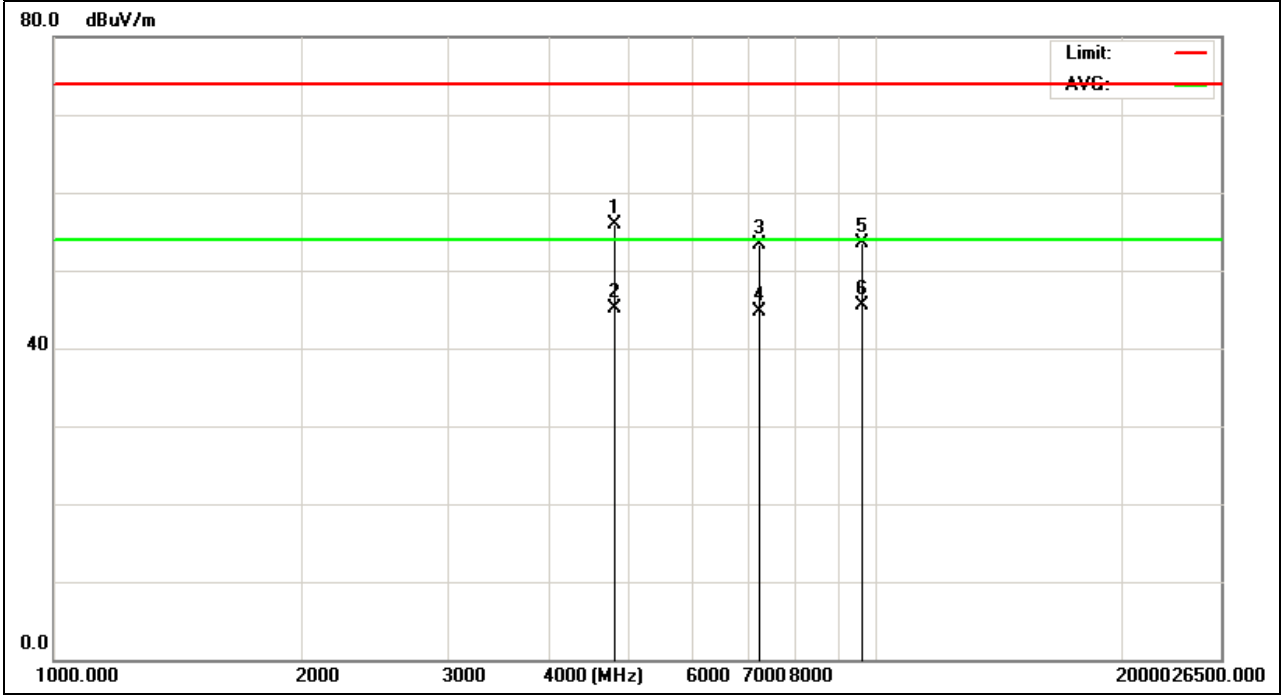
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. No emission detected above 18GHz



EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	CH1	Polarization：	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4810.2	59.45	-3.63	55.82	74	-18.18	peak
4810.2	48.67	-3.63	45.04	54	-8.96	AVG
7215.15	54.18	-0.97	53.21	74	-20.79	peak
7215.15	45.67	-0.97	44.7	54	-9.3	AVG
9620.33	51.54	1.93	53.47	74	-20.53	peak
9620.33	43.48	1.93	45.41	54	-8.59	AVG

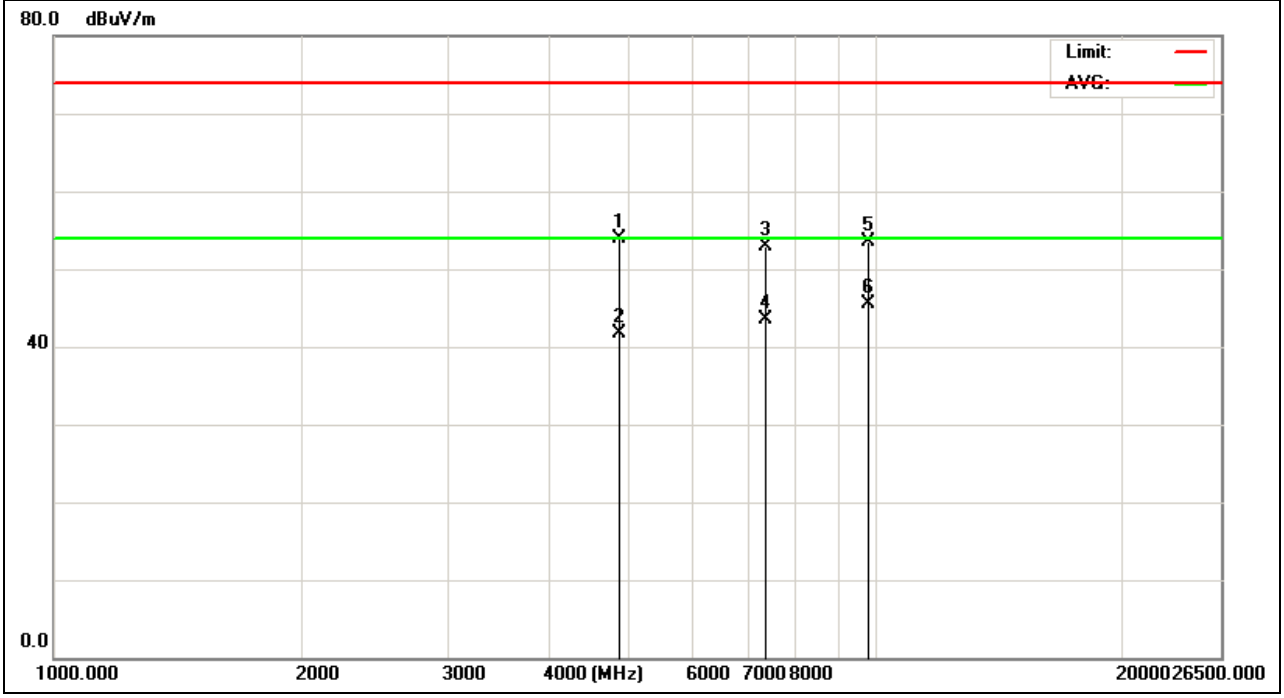
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. No emission detected above 18GHz



EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	CH9	Polarization：	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4890.05	57.66	-3.72	53.94	74	-20.06	peak
4890.05	45.46	-3.72	41.74	54	-12.26	AVG
7335.16	53.74	-0.82	52.92	74	-21.08	peak
7335.16	44.41	-0.82	43.59	54	-10.41	AVG
9780.26	52.42	1.05	53.47	74	-20.53	peak
9780.26	44.36	1.05	45.41	54	-8.59	AVG

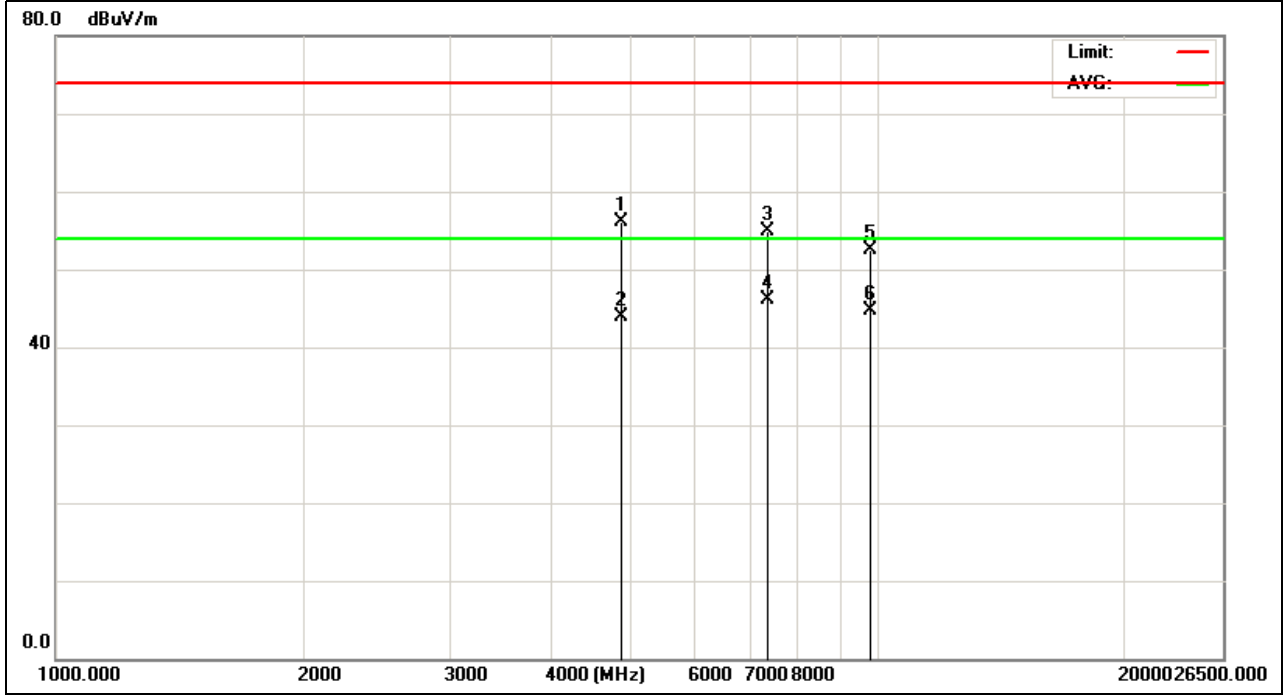
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. No emission detected above 18GHz



EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	CH9	Polarization：	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4890.05	59.78	-3.72	56.06	74	-17.94	peak
4890.05	47.61	-3.72	43.89	54	-10.11	AVG
7335.16	55.74	-0.82	54.92	74	-19.08	peak
7335.16	46.95	-0.82	46.13	54	-7.87	AVG
9780.26	51.51	1.05	52.56	74	-21.44	peak
9780.26	43.66	1.05	44.71	54	-9.29	AVG

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. No emission detected above 18GHz

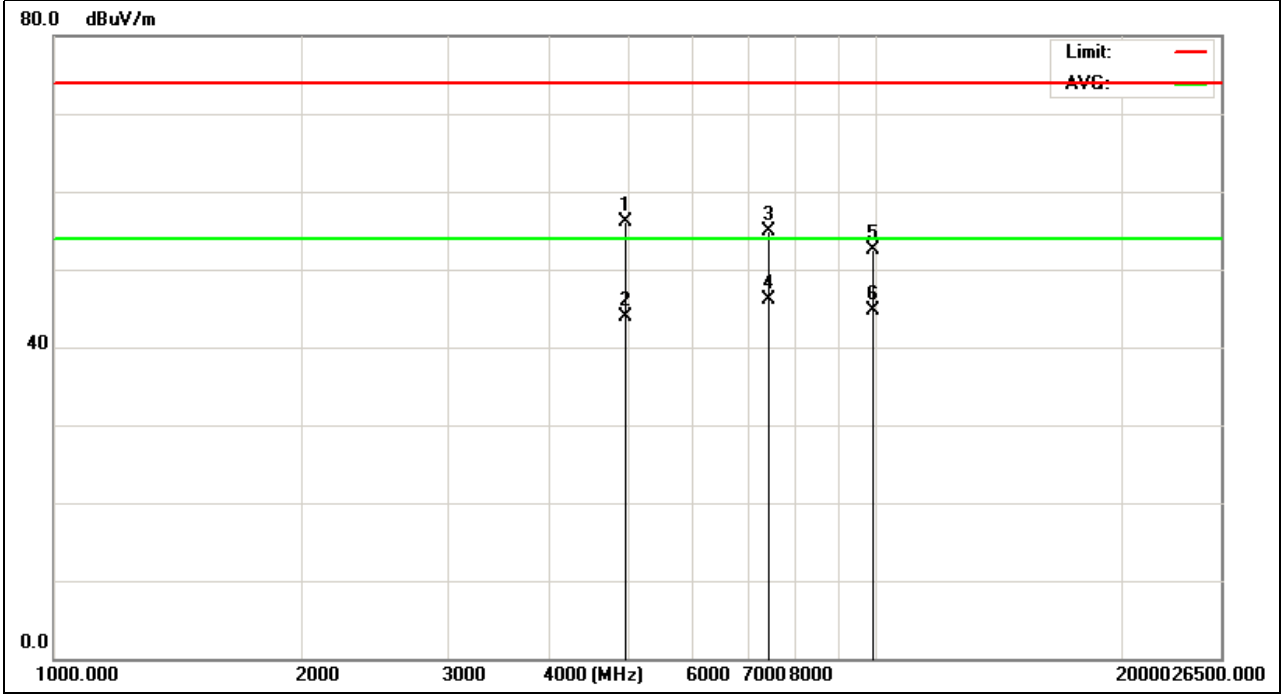


EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	CH16	Polarization：	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4960.12	59.65	-3.59	56.06	74	-17.94	peak
4960.12	47.48	-3.59	43.89	54	-10.11	AVG
7440.32	55.6	-0.68	54.92	74	-19.08	peak
7440.32	46.81	-0.68	46.13	54	-7.87	AVG
9920.35	51.41	1.15	52.56	74	-21.44	peak
9920.35	43.56	1.15	44.71	54	-9.29	AVG

Remark:

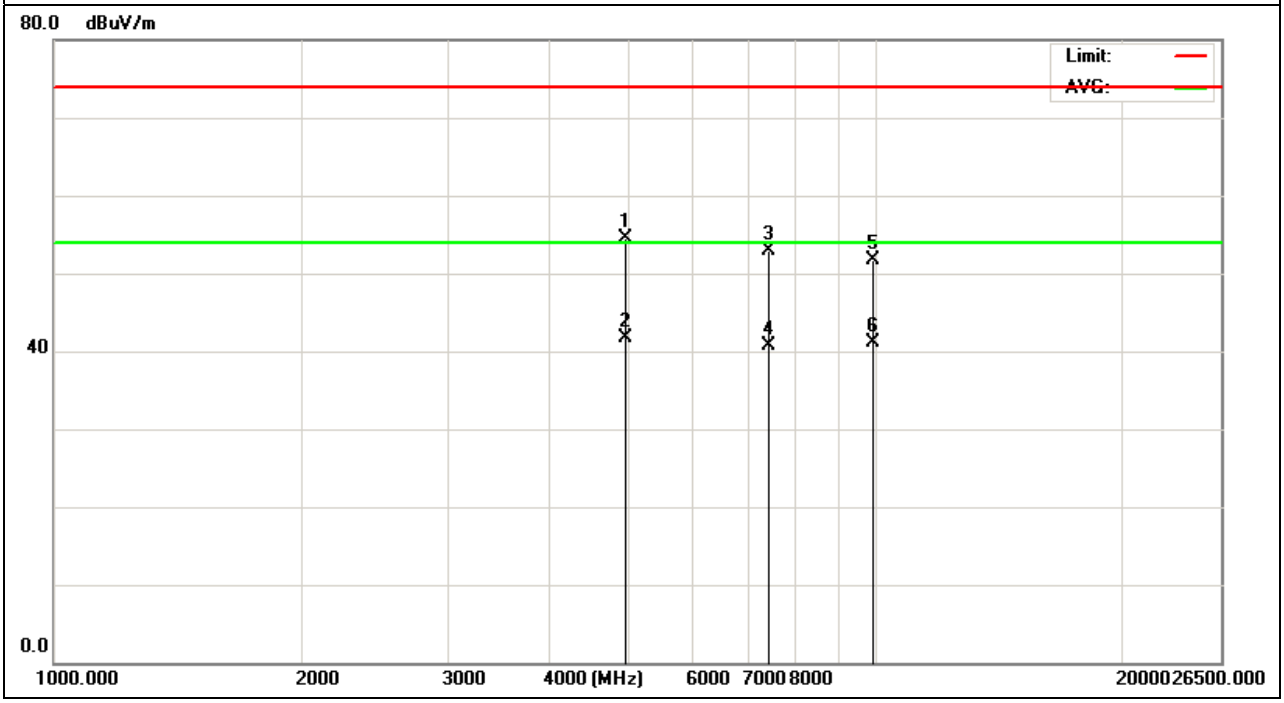
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. No emission detected above 18GHz



EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V
Test Mode ：	CH16	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4960.12	58.14	-3.59	54.55	74	-19.45	peak
4960.12	45.3	-3.59	41.71	54	-12.29	AVG
7440.32	53.66	-0.68	52.98	74	-21.02	peak
7440.32	41.42	-0.68	40.74	54	-13.26	AVG
9920.35	50.56	1.15	51.71	74	-22.29	peak
9920.35	39.87	1.15	41.02	54	-12.98	AVG

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. No emission detected above 18GHz

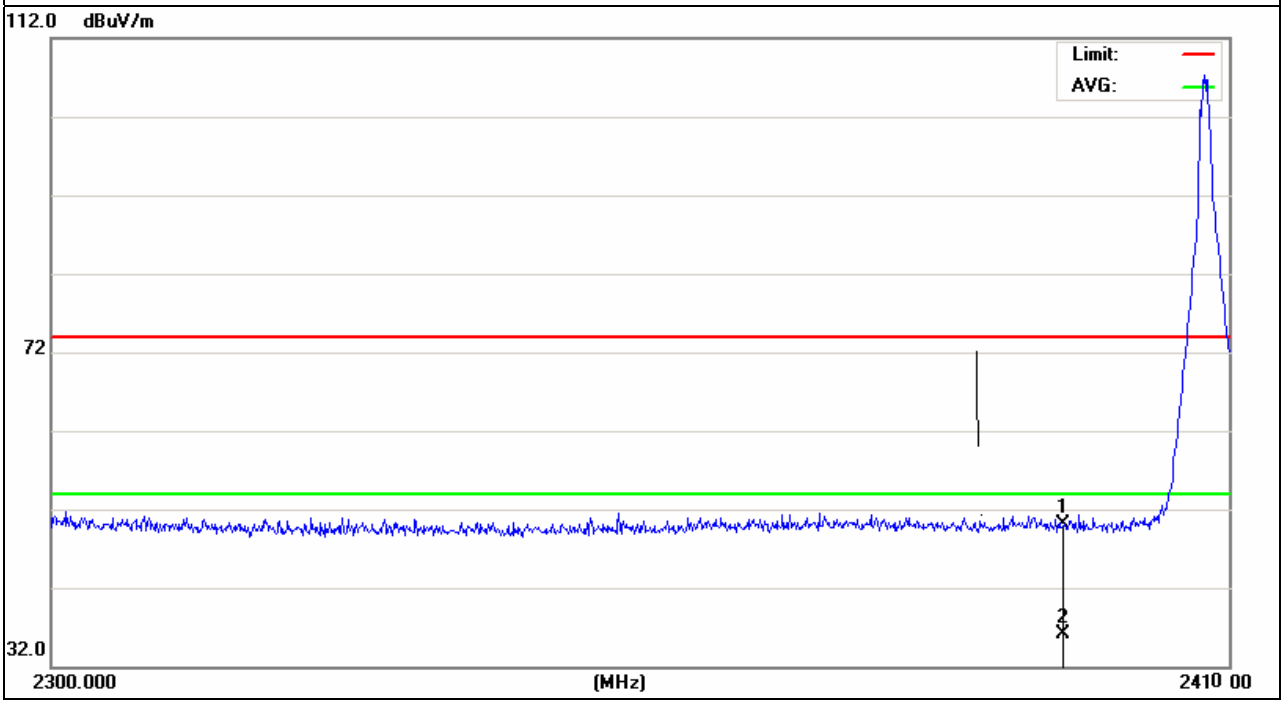


Band Edge Emission:

EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name ：	SZ05-ADV
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2011-11-18
Test Mode ：	CH1	Polarization：	Vertical
Test Power ：	DC 5V		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400	65.07	-14.92	50.15	74	-23.85	peak
2400	51.00	-14.92	36.08	54	-17.92	AVG

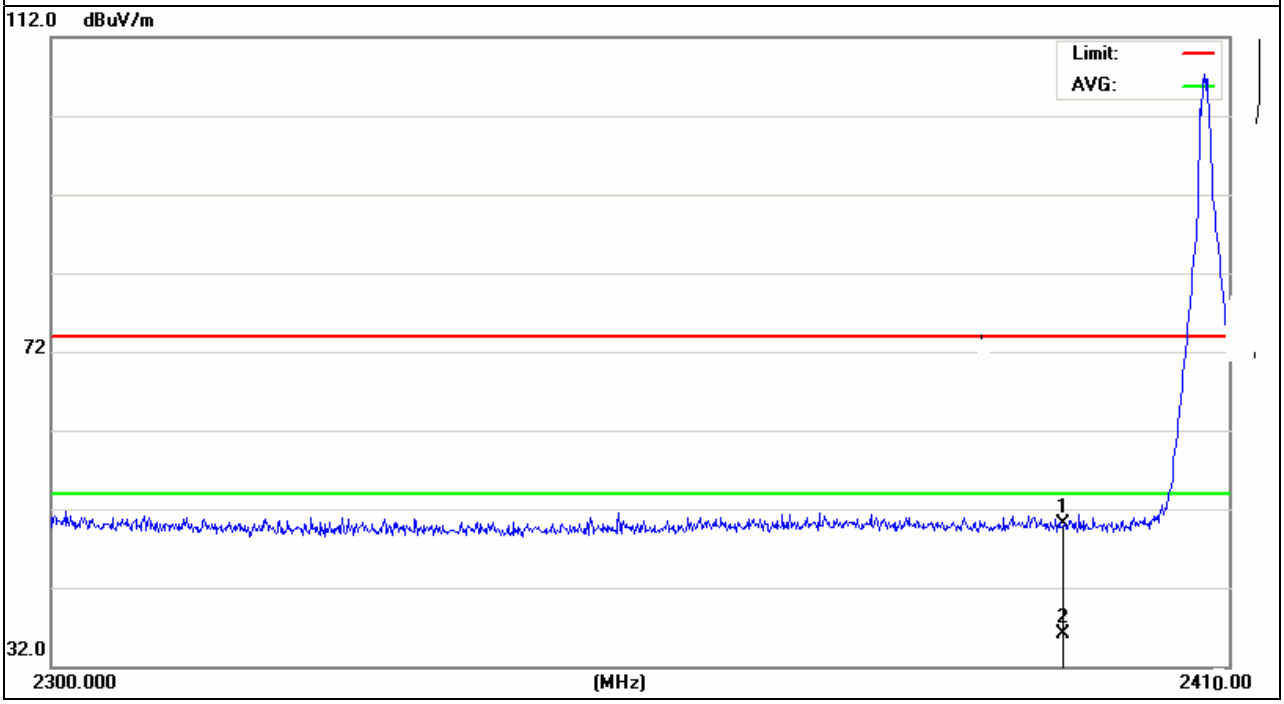
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name ：	SZ05-ADV
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Polarization：	Horizontal
Test Mode ：	CH1		
Test Power ：	DC 5V		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400	65.05	-14.92	50.13	74	-23.87	peak
2400	51.07	-14.92	36.15	54	-17.85	AVG

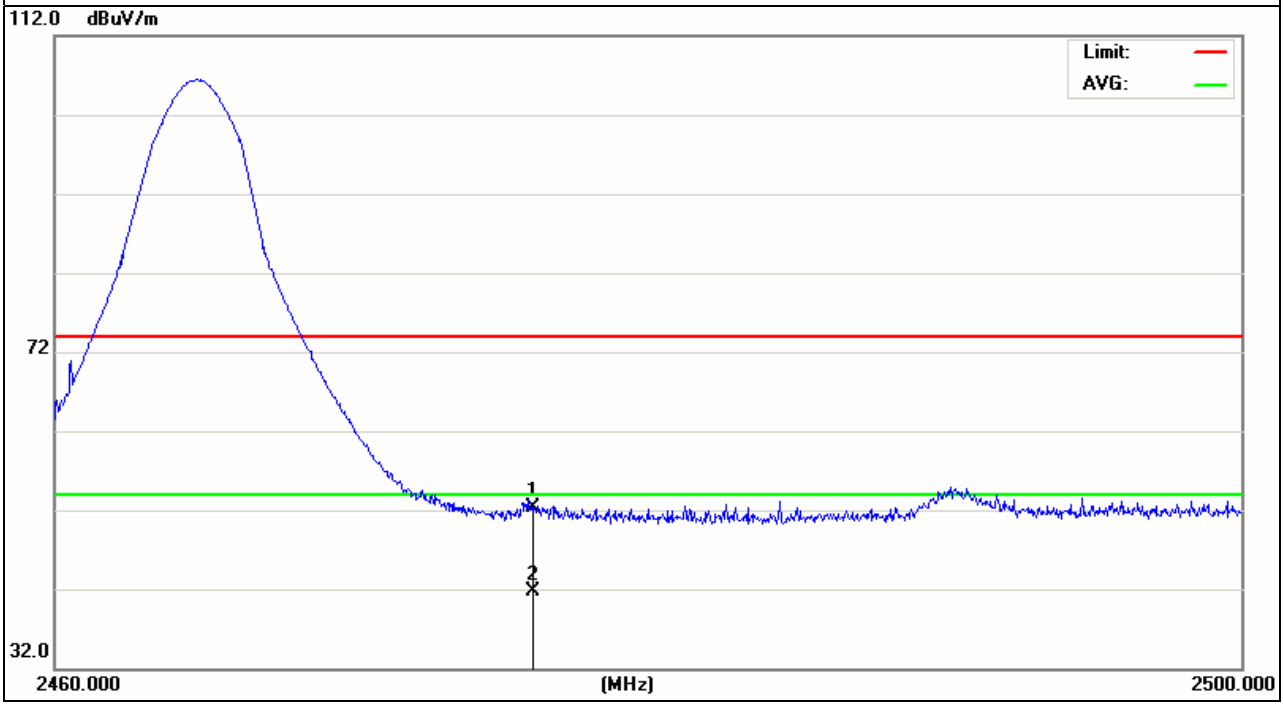
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name ：	SZ05-ADV
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Polarization：	Vertical
Test Mode ：	CH16		
Test Power ：	DC 5V		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	65.23	-15.12	50.11	74	-23.89	peak
2483.5	51.45	-15.12	36.33	54	-17.67	AVG

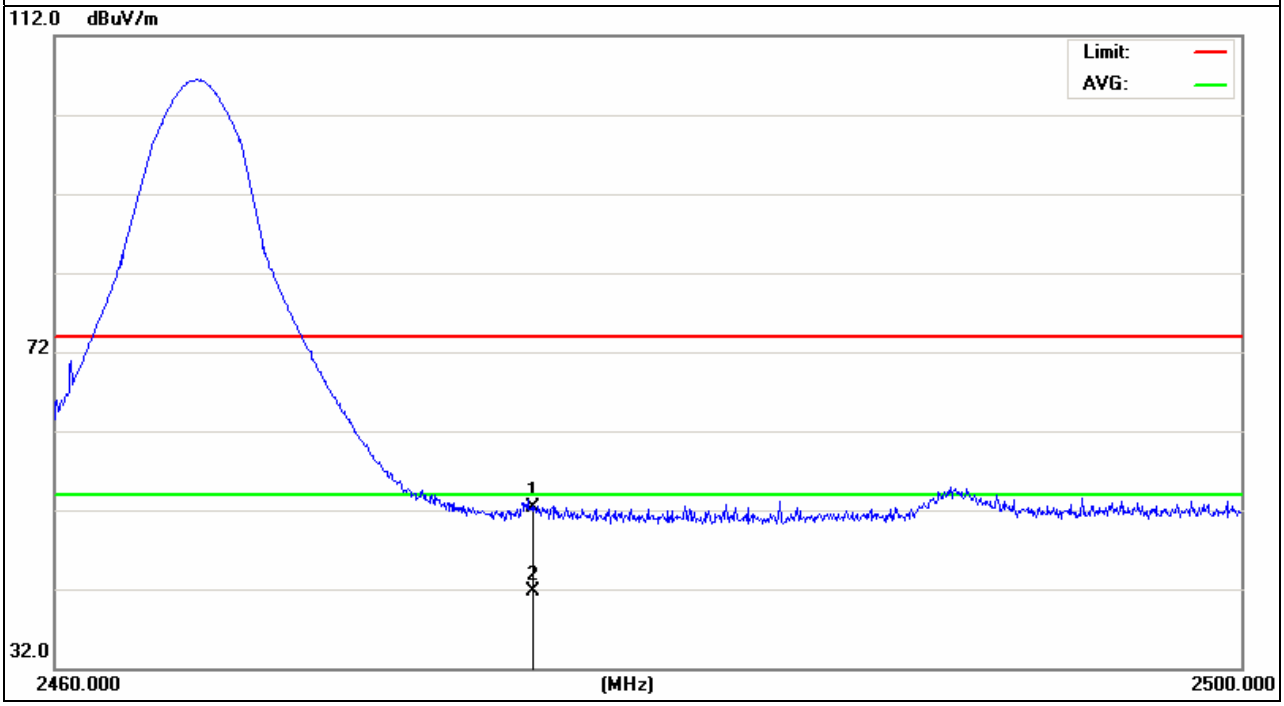
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name ：	SZ05-ADV
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Polarization：	Horizontal
Test Mode ：	CH16		
Test Power ：	DC 5V		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	65.44	-15.12	50.32	74	-23.68	peak
2483.5	51.01	-15.12	35.89	54	-18.11	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (d)	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RB	100 kHz
VB	300 kHz
Span	5-30 % greater than the EBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

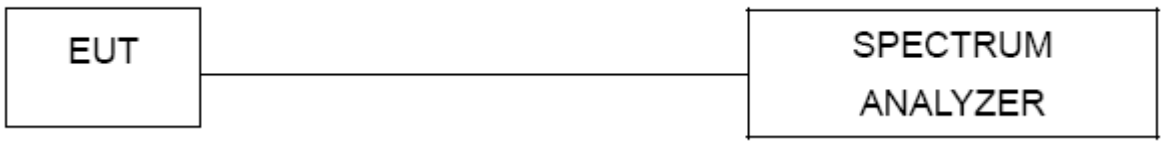
4.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=300KHz, Sweep time = auto, Span=2MHz
c. The testing follows themeasurement procedure of FCC KDB publication No. 558074 D01 DTS meas. Guidance v01.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

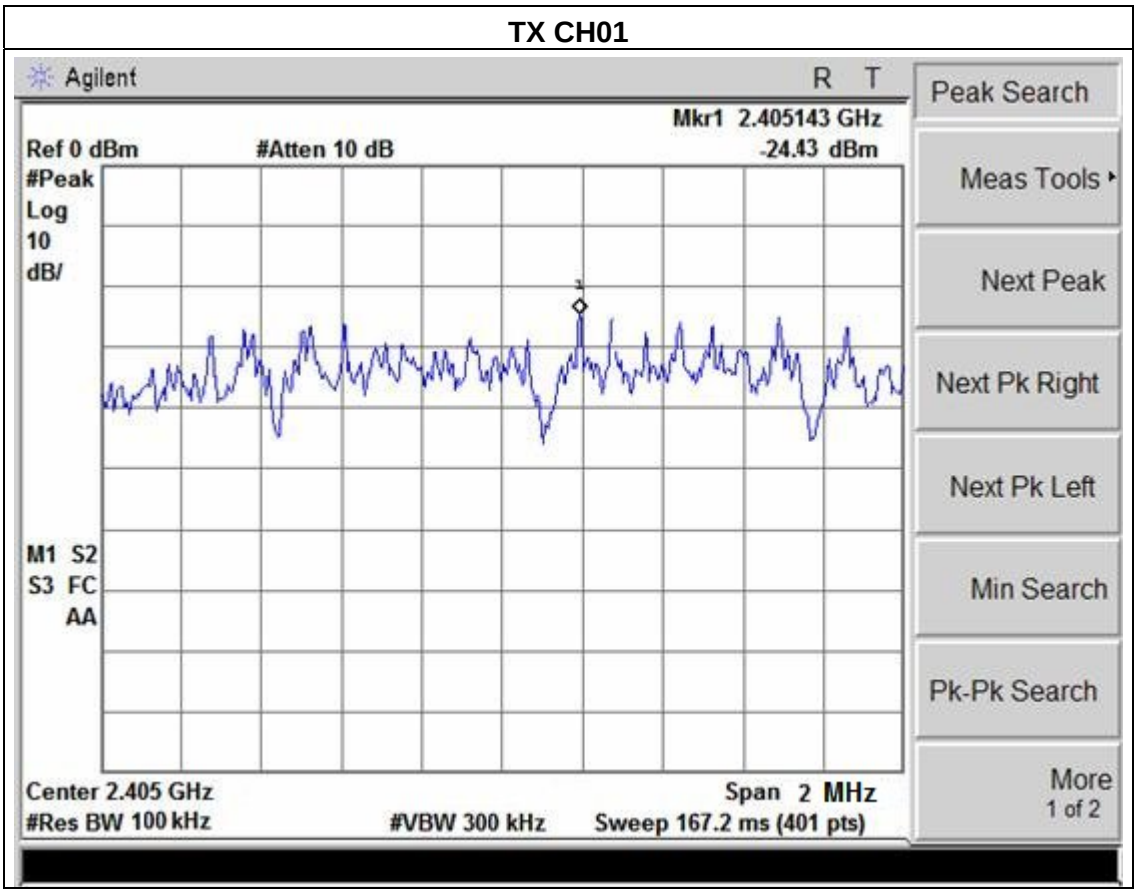
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.5 TEST RESULTS

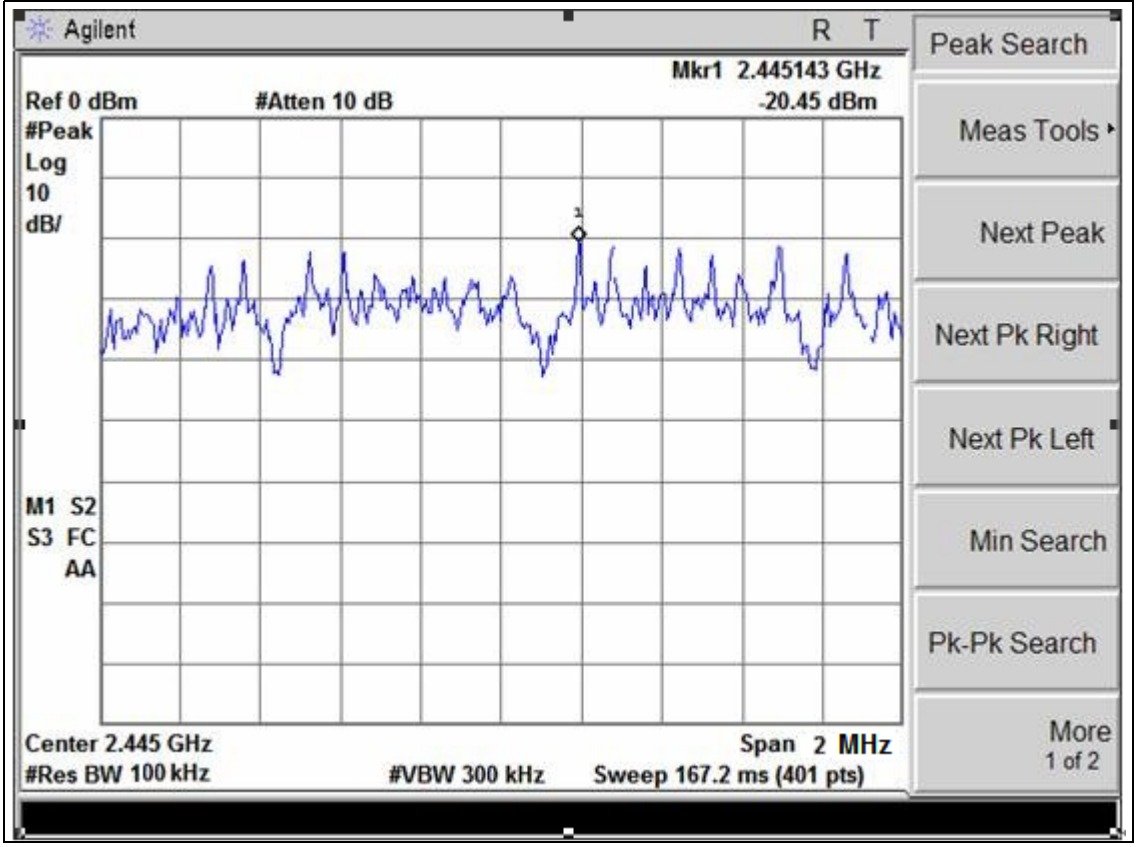
EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1015 hPa	Test Voltage ：	DC 5V
Test Mode ：	CH01, CH09, CH16		

Frequency	Power Density in 100kHz (dBm)	Power Density in 3kHz (dBm)	Limit (in any 3KHz) (dBm)	Result
2405 MHz	-24.43	-39.63	8	**PASS**
2445 MHz	-20.45	-35.65	8	**PASS**
2480 MHz	-18.74	-33.94	8	**PASS**

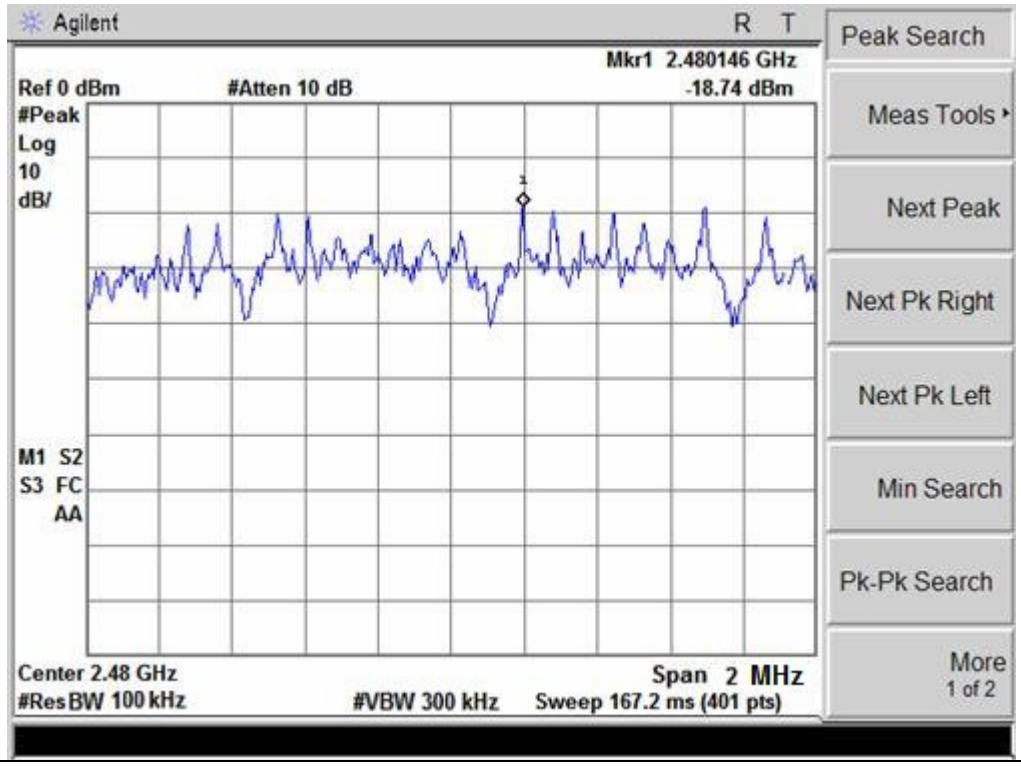
TX CH01



TX CH09



TX CH16



5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	1-5 % of the emission bandwidth (EBW)
VB	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

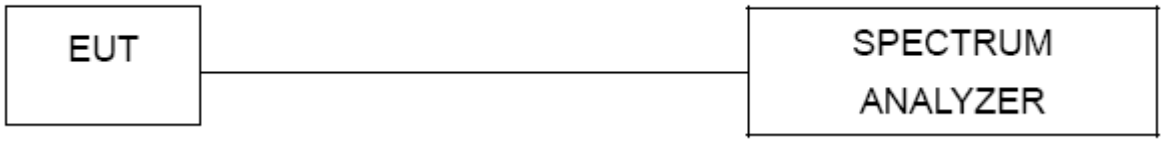
5.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 30KHz, VBW=100KHz, Sweep time = Auto.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

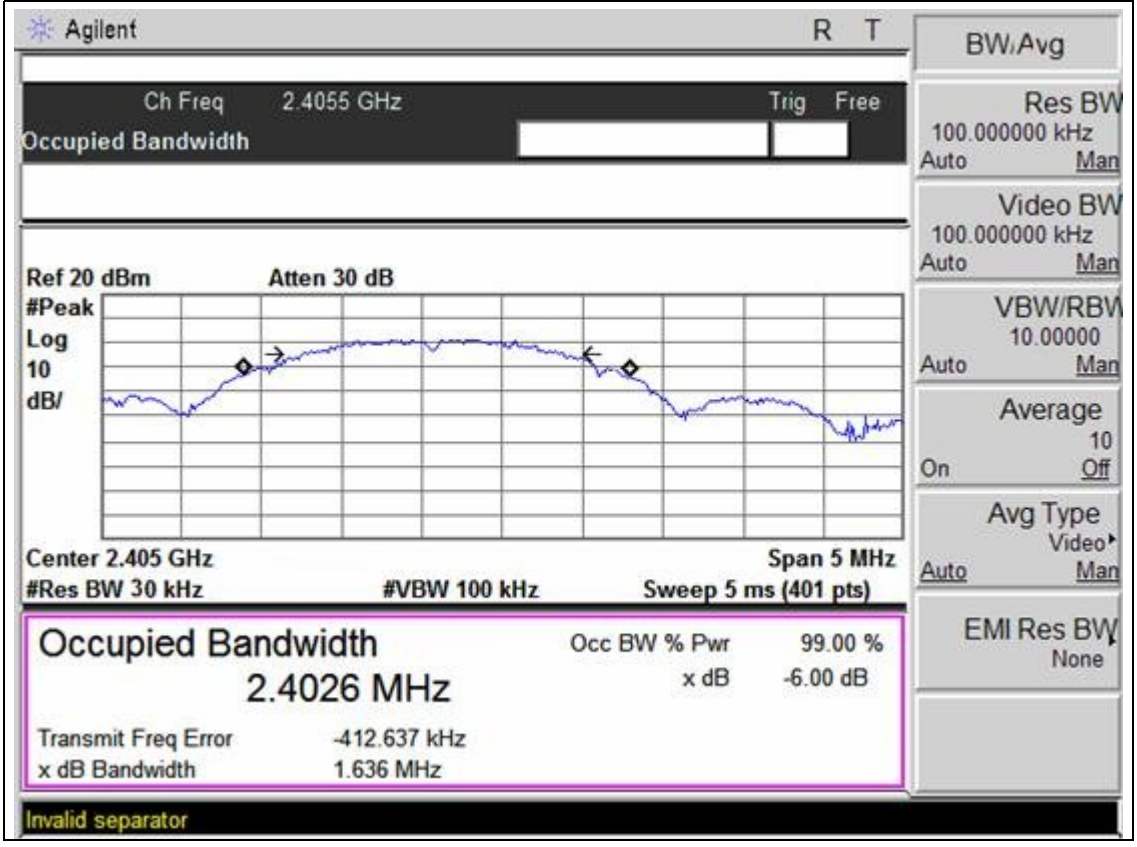
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

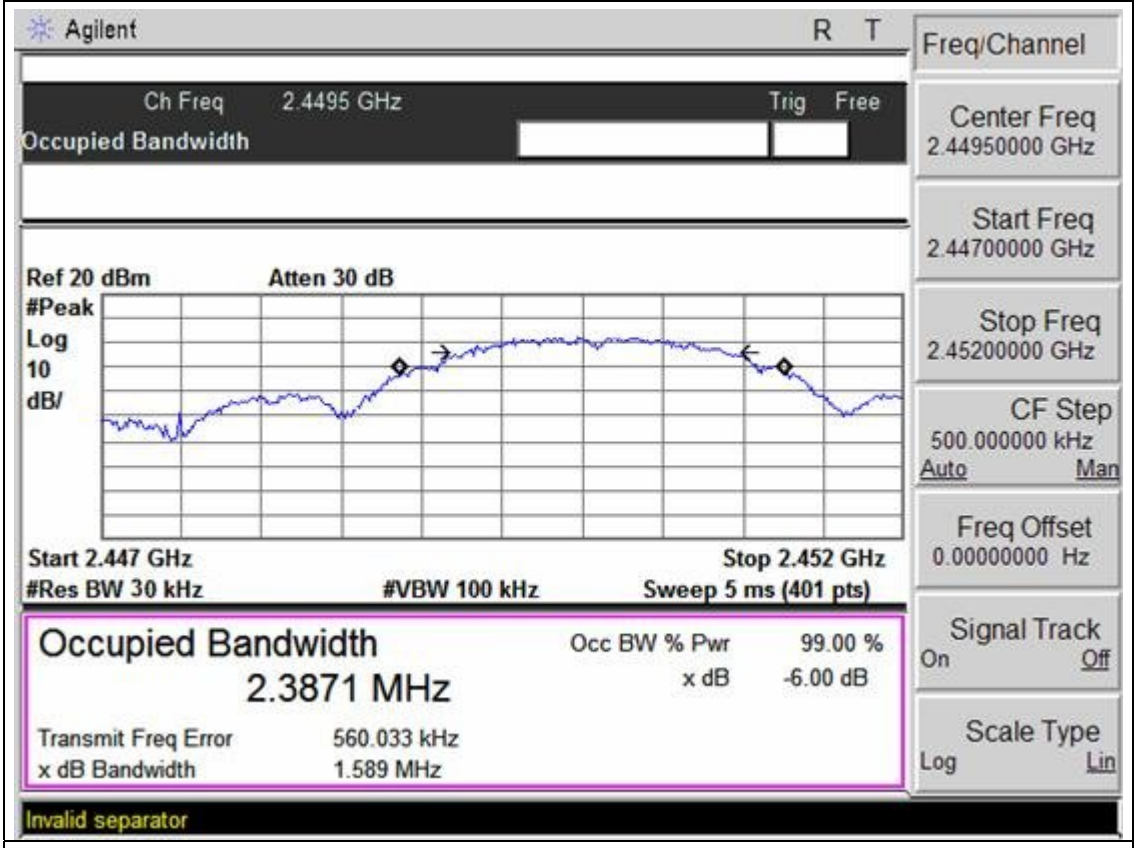
EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 5V
Test Mode ：	CH01, CH9, CH16		

Frequency	6dB Bandwidth (MHz)	Channel Separation (MHz)	Result
2405 MHz	1.636	>=500KHz	**PASS**
2445 MHz	1.589	>=500KHz	**PASS**
2480 MHz	1.534	>=500KHz	**PASS**

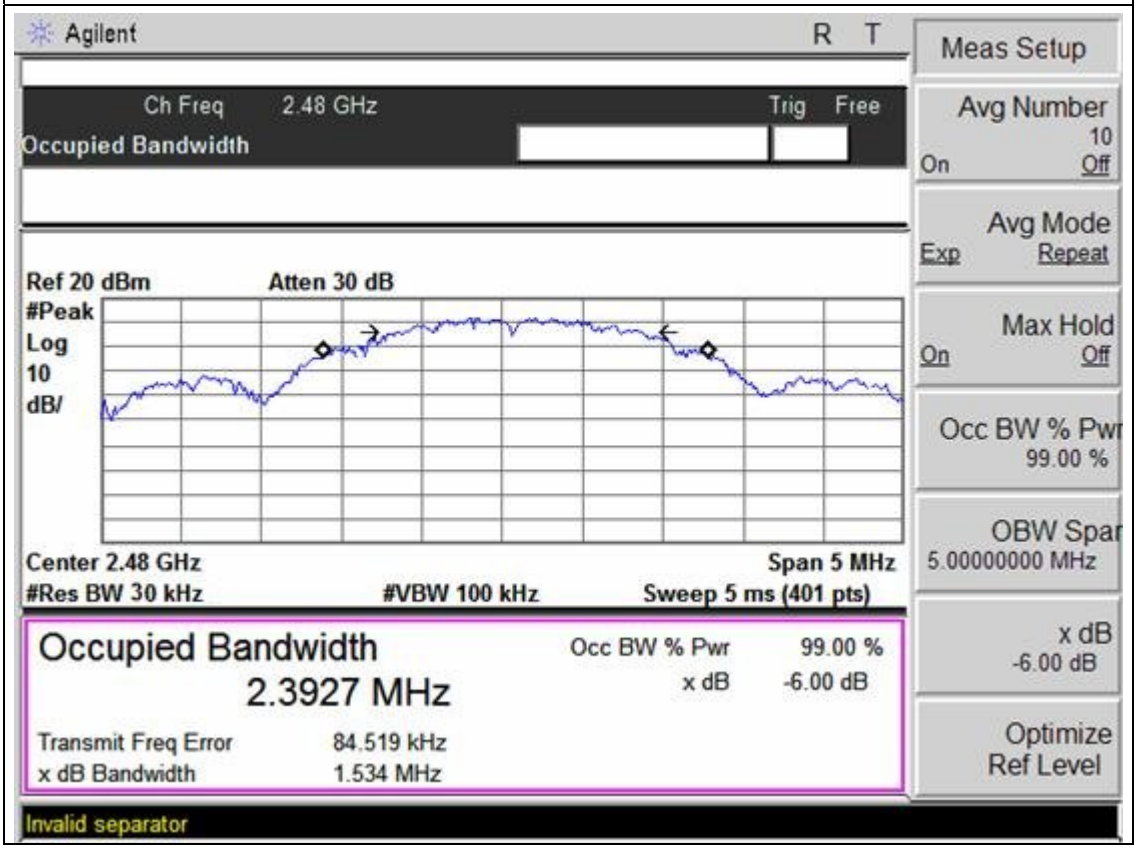
TX CH 01



TX CH 09



TX CH 16



6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (b)(1)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

6.1.1 TEST PROCEDURE

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	5-30 % greater than the EBW
RB	1MHz
VB	3MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 1MHz, VBW=3MHz, Sweep time = Auto.
c. The testing follows themeasurement procedure PK2 of FCC KDB publication No. 558074 D01 DTS meas. Guidance v01.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP

6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

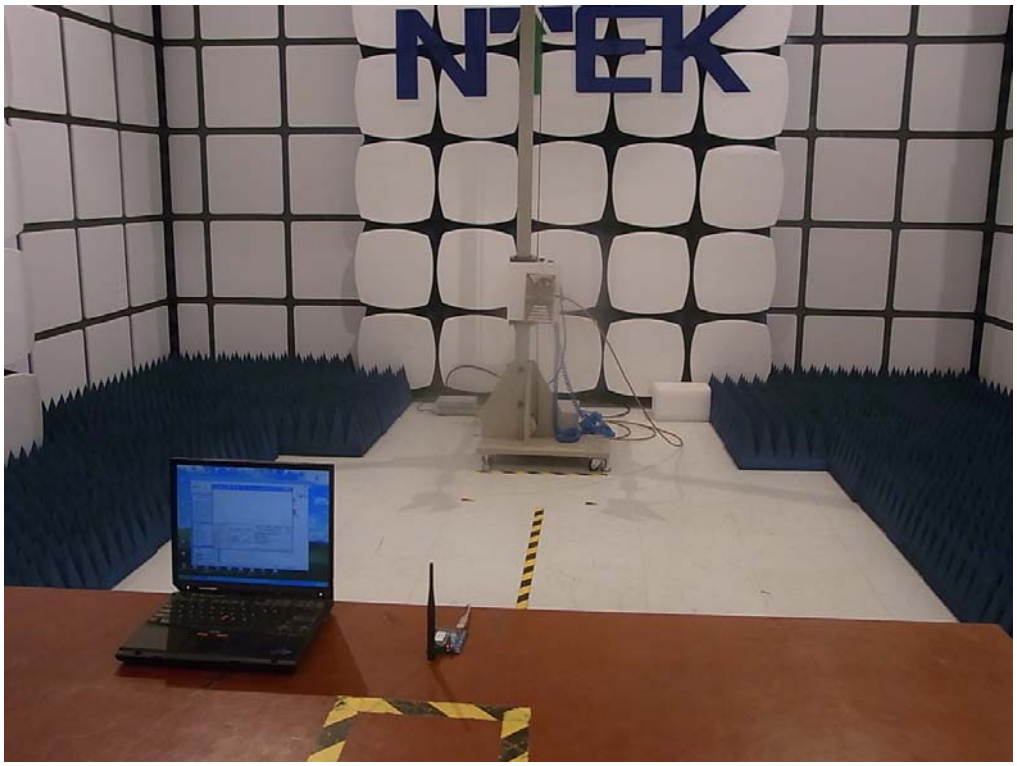
6.1.5 TEST RESULTS

EUT：	Wireless Communication Modules For Data Acquisition And Transmission	Model Name. ：	SZ05-ADV
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 5V
Test Mode ：	CH1, CH9, CH16		

Test Channel	Frequency (MHz)	Antenna gain (dBi)	Output power (dBm)	LIMIT (dBm)	LIMIT (W)
CH1	2405	3	10.78	30	1
CH9	2445	3	10.23	30	1
CH16	2480	3	10.58	30	1

7. EUT TEST PHOTO

Radiated Measurement Photos



Conducted Measurement Photos

APPENDIX-PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

Photo 1

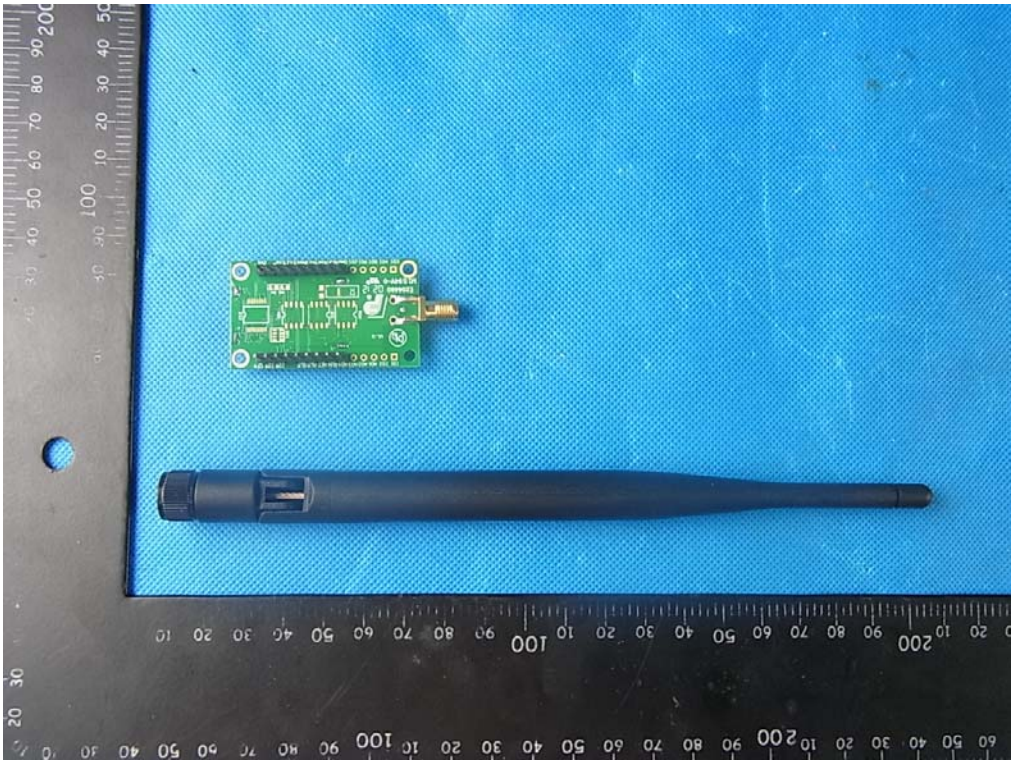


Photo 2

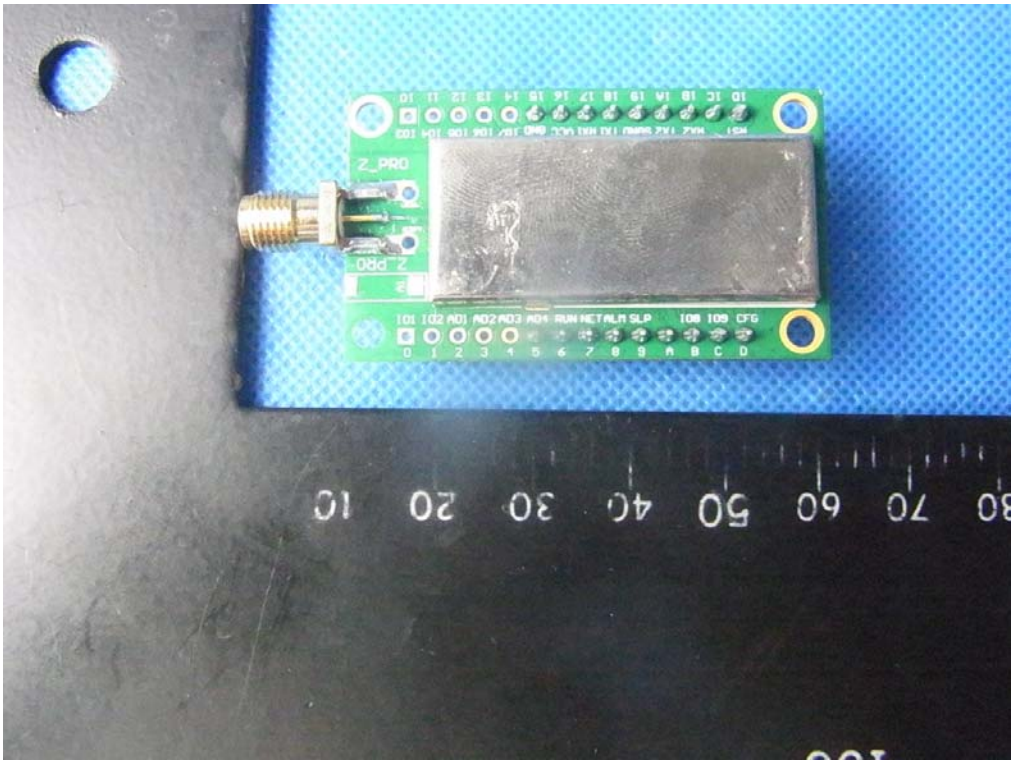


Photo 3

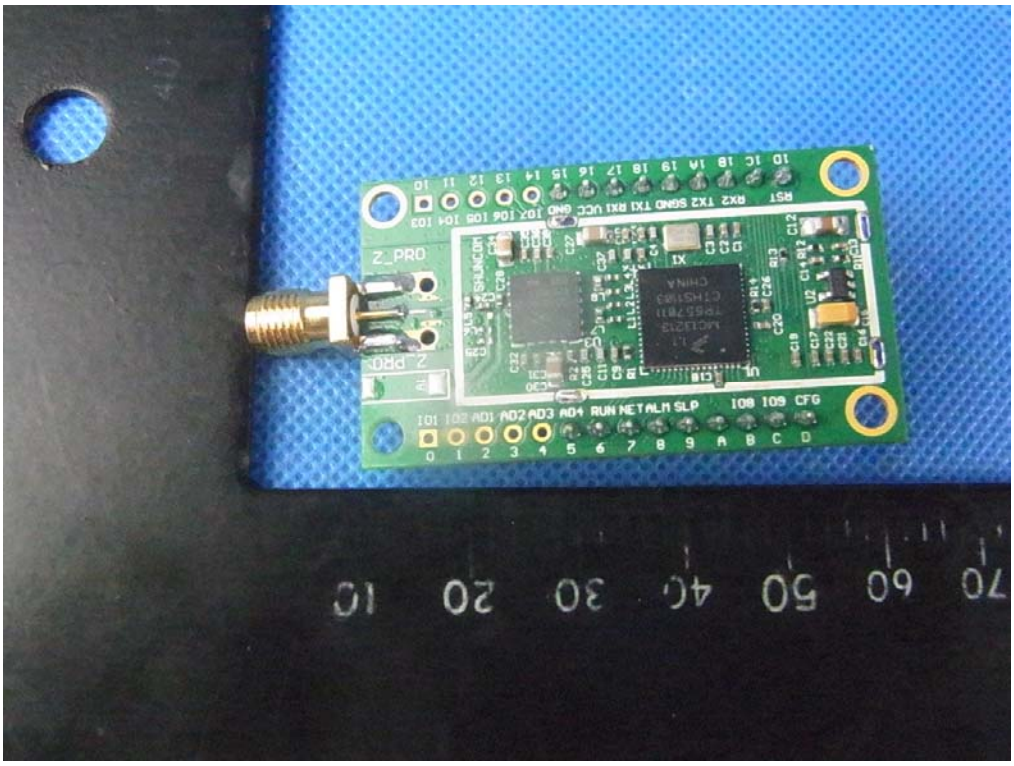


Photo 4