



# FCC Test Report

Product Name : CI-B02GS01S CI1102 module

Model No. : CI-B02GS01S

Applicant : Chipintelli Technology Co., Ltd.

Address : Room 106, Buliding 6, Incubation Park, No.1480  
Tianfu Avenue, Hi-Tech Zone, Chengdu, China

Date of Receipt : Jan. 16, 2020

Test Date : Jan. 16, 2020

Issued Date : Jan. 17, 2020

Report No. : 2012049E-IT-US-P01V01

Report Version : V1.0

# Test Report Certification

Issued Date : Jan. 17, 2020  
 Report No. : 2012049E-IT-US-P01V01



Product Name : CI-B02GS01S CI1102 module  
 Applicant : Chipintelli Technology Co., Ltd.  
 Address : Room 106, Buliding 6, Incubation Park, No.1480 Tianfu Avenue, Hi-Tech Zone, Chengdu, China  
 Manufacturer : Chipintelli Technology Co., Ltd.  
 Address : Room 106, Buliding 6, Incubation Park, No.1480 Tianfu Avenue, Hi-Tech Zone, Chengdu, China  
 Model No. : CI-B02GS01S  
 Brand Name : CHIPINTELLI  
 EUT Voltage : DC 5 V  
 Test Voltage : DC 5 V  
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart B: 2018 Class B  
 ANSI C63.4: 2014  
 Test Result : Complied  
 Performed Location : DEKRA Testing and Certification (Suzhou) Co., Ltd.  
 No.99 Hongye Rd., Suzhou Industrial Park, Suzhou,215006, Jiangsu, China  
 TEL: +86-512-62515088 / FAX: +86-512-62515098

This report is made under FCC Part 2.1075. No modifications were required during testing to bring this product into compliance.

Documented By : Michael Li  
 (Project Engineer: Michael Li)

Reviewed By : Black Hao  
 (Supervisor: Black Hao)

Approved By : Jerry Pan  
 (Manager: Jerry Pan)

The test results relate only to the samples tested.  
 The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.  
 This report must not be used to claim product endorsement by TAF or any agency of the government.  
 The test report shall not be reproduced without the written approval of DEKRA Testing & Certification (Suzhou) Co., Ltd.

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## 1. General Information

### 1.1. EUT Description

Product Name	CI-B02GS01S CI1102 module
Model No.	CI-B02GS01S
Brand Name	CHIPINTELLI

### 1.2. Mode of Operation

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:


Final Test Mode
Mode 1 : Working mode

### 1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

### 1.4. Configuration of Tested System

Test Configuration / Block diagram	
	
Signal Cable Type	Signal cable Description
A	N/A

### 1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Confirm the EUT working normally.
4	Start test.

**2. Technical Test**

**2.1. Summary of Test Result**

- No deviations from the test standards
- Deviations from the test standards as below description:

Emission			
Performed Test Item	Normative References	Test Performed	Deviation
Conducted disturbance	FCC CFR Title 47 Part 15 Subpart B: 2018 Class B ANSI C63.4: 2014	Yes	No
Radiated disturbance	FCC CFR Title 47 Part 15 Subpart B: 2018 Class B ANSI C63.4: 2014	Yes	No



## 2.2. List of Test Equipment

### Conducted Emission / TR1

Instrument	Manufacturer	Model No.	Serial No.	Cali. Date	Cali. Due Date
EMI Test Receiver	R&S	ESCI	100906	2019.04.20	2020.04.19
Two-Line V-Network	R&S	ENV216	101190	2019.05.25	2020.05.24
Two-Line V-Network	R&S	ENV216	101044	2019.05.25	2020.05.24
50ohm Termination	SHX	TF2	07081402	2019.09.02	2020.09.01
50ohm Termination	SHX	TF2	07081403	2019.09.02	2020.09.01
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Coaxial Cable	Suhner	RG 223	TR1-C1	2019.09.27	2020.09.26
Temperature/Humidity Meter	ruitesi	RTS-8S	TR1-TH	2019.08.21	2020.08.20
Software	Quietek	EMI_V3	V3.0.0	N/A	N/A

### Radiated Emission / AC1

Instrument	Manufacturer	Model No.	Serial No.	Cali. Date	Cali. Due Date
EMI Test Receiver	R&S	ESCI	100175	2019.08.30	2020.08.29
EMI Test Receiver	R&S	ESCI	100726	2019.05.25	2020.05.24
Preamplifier	Quietek	AP-025C	CHM-0602008	2019.04.13	2020.04.12
Preamplifier	Quietek	AP-025C	CHM-0503006	2019.04.13	2020.04.12
Bilog Antenna	Schaffner	CBL6112B	2931	2019.05.11	2020.05.10
Bilog Antenna	Schaffner	CBL6112B	2933	2019.05.11	2020.05.10
Coaxial Cable	Huber+Suhner	RG 214_U	AC1-L	2019.04.13	2020.04.12
Coaxial Cable	Huber+Suhner	RG 214_U	AC1-R	2019.04.13	2020.04.12
Temperature/Humidity Meter	RTS	RTS-8S	AC1-TH	2019.08.21	2020.08.20
Software	Quietek	EMI_V3	V3.0.0	N/A	N/A

### Radiated Emission / AC2

Instrument	Manufacturer	Model No.	Serial No.	Cali. Date	Cali. Due Date
EMI Test Receiver	R&S	ESCI	100573	2019.03.03	2020.03.02
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2019.09.23	2020.09.22
Coaxial Cable	Huber+Suhner	RG 214	AC2-C	2019.04.13	2020.04.12
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2019.09.02	2020.09.01
Software	Quietek	EMI_V3	V3.0.0	N/A	N/A

### Radiated Emission / AC3

Instrument	Manufacturer	Model No.	Serial No.	Cali. Date	Cali. Due Date
EMI Test Receiver	R&S	ESCI	100176	2019.08.30	2020.08.29
Bilog Antenna	Teseq GmbH	CBL6112D	27613	2019.05.25	2020.05.24
Coaxial Cable	Huber+Suhner	RG 214	AC3-C	2019.04.13	2020.04.12
Temperature/Humidity Meter	ruitesi	RTS-8S	AC3-TH	2019.09.02	2020.09.01

Meter					
Software	Quietek	EMI_V3	V3.0.0	N/A	N/A

## Radiated Emission / AC5

Instrument	Manufacturer	Model No.	Serial No.	Cali. Date	Cali. Due Date
EMI Receiver	Agilent	N9038A	MY51210196	2019.05.25	2020.05.24
low Noise Amplifier	BXT	NA2651D	LNA17040209	2019.04.13	2020.04.12
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2019.05.25	2020.05.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2019.04.13	2020.04.12
Pre-Amplifier	Chengyi	EMC184045SE	980263	2019.06.13	2020.06.12
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2019.04.25	2020.04.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2019.03.23	2021.03.22
Temperature/Humidity Meter	ruitesi	RTS-8S	AC5-TH	2019.09.02	2020.09.01
Software	Quietek	EMI_V3	V3.0.0	N/A	N/A

### 2.3. Test Environment

Tests have been performed in a controlled laboratory environment, where the environmental conditions are maintained within the applicable ranges.

Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	10-40	23
	Humidity (%RH)	25-75	40
	Barometric pressure (mbar)	860-1060	1016
Radiated Emission (30~1000MHz)	Temperature (°C)	10-40	24
	Humidity (%RH)	25-75	41
	Barometric pressure (mbar)	860-1060	1014
Radiated Emission (1~40GHz)	Temperature (°C)	10-40	24
	Humidity (%RH)	25-75	41
	Barometric pressure (mbar)	860-1060	1014

## 2.4. Measurement Uncertainty

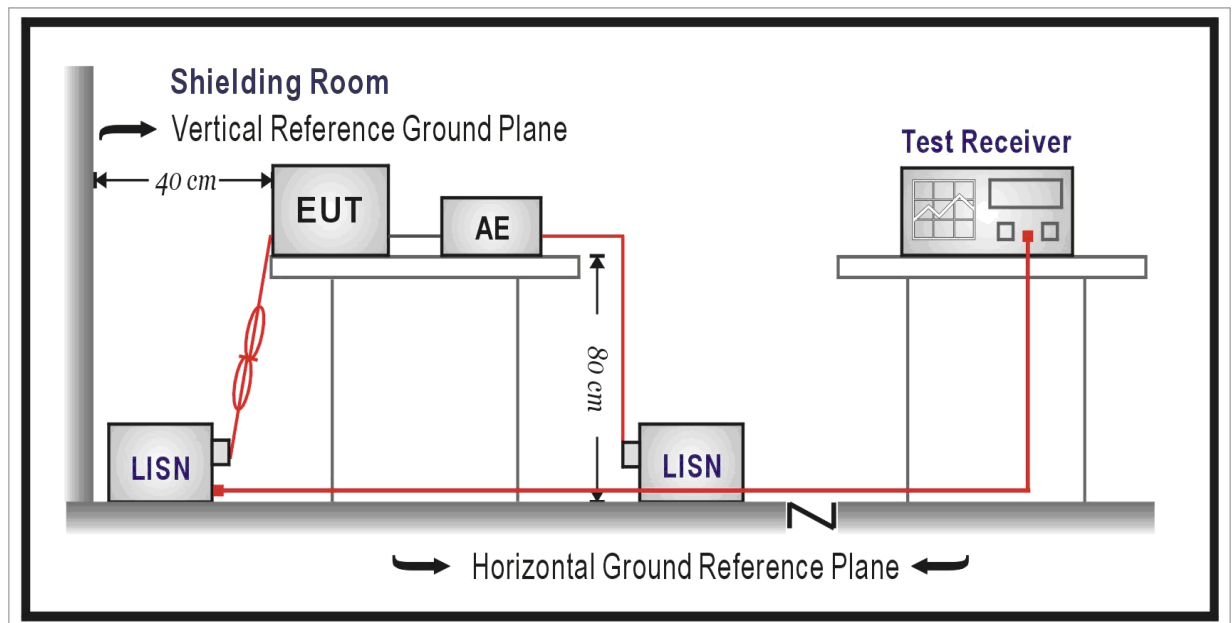
Conducted disturbance / TR1
<p>The maximum measurement uncertainty is evaluated as:</p> <p>9kHz~150kHz: 2.80dB</p> <p>150kHz~30MHz: 2.40dB</p>
Radiated disturbance / AC1
<p>The maximum measurement uncertainty is evaluated as:</p> <p>Horizontal: 30MHz~300MHz: 3.50 dB</p> <p>                  300MHz~1GHz: 3.20 dB</p> <p>                  1GHz~18GHz: 4.80 dB</p> <p>Vertical: 30MHz~300MHz: 3.60 dB</p> <p>                  300MHz~1GHz: 3.10 dB</p> <p>                  1GHz~18GHz: 4.50 dB</p>
Radiated disturbance / AC2
<p>The maximum measurement uncertainty is evaluated as:</p> <p>Horizontal: 30MHz~300MHz: 3.60 dB</p> <p>                  300MHz~1GHz: 3.10 dB</p> <p>Vertical: 30MHz~300MHz: 3.20 dB</p> <p>                  300MHz~1GHz: 3.20 dB</p>
Radiated disturbance / AC3
<p>The maximum measurement uncertainty is evaluated as:</p> <p>Horizontal: 30MHz~300MHz: 3.50 dB</p> <p>                  300MHz~1GHz: 3.60 dB</p> <p>Vertical: 30MHz~300MHz: 3.60 dB</p> <p>                  300MHz~1GHz: 3.50 dB</p>
Radiated disturbance / AC5
<p>The maximum measurement uncertainty is evaluated as:</p> <p>Horizontal: 30MHz~300MHz: 3.90 dB</p> <p>                  300MHz~1GHz: 3.60 dB</p> <p>                  1GHz~18GHz: 5.00 dB</p> <p>Vertical: 30MHz~300MHz: 3.80 dB</p> <p>                  300MHz~1GHz: 3.50 dB</p> <p>                  1GHz~18GHz: 4.80 dB</p>

### 3. Conducted disturbance

#### 3.1. Test Specification

According to Standard: FCC Part 15.107 Class B, ANSI C63.4

#### 3.2. Test Setup



### 3.3. Limit

Limits for conducted disturbance of class A ITE		
Frequency range MHz	Limits dB(μV)	
	Quasi-peak	Average
0.15 to 0.50	79	66
0.50 to 30	73	60

NOTE: The lower limit shall apply at the transition frequency.

Limits for conducted disturbance of class B ITE		
Frequency range MHz	Limits dB(μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

NOTE 1: The lower limit shall apply at the transition frequencies.  
 NOTE 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

### 3.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50Ω / 50μH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50Ω / 50μH coupling impedance with 50Ω termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

### 3.5. Deviation from Test Standard

No deviation.

### **3.6. Test Result**

The EUT is a battery operated portable equipment, so the test item is not necessary performed.

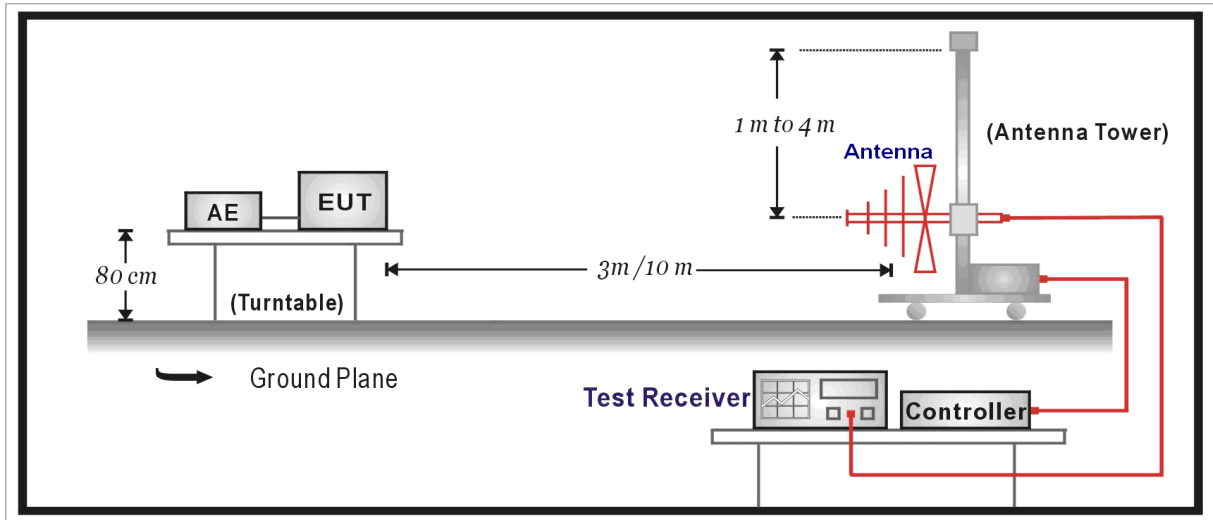
## 4. Radiated disturbance

### 4.1. Test Specification

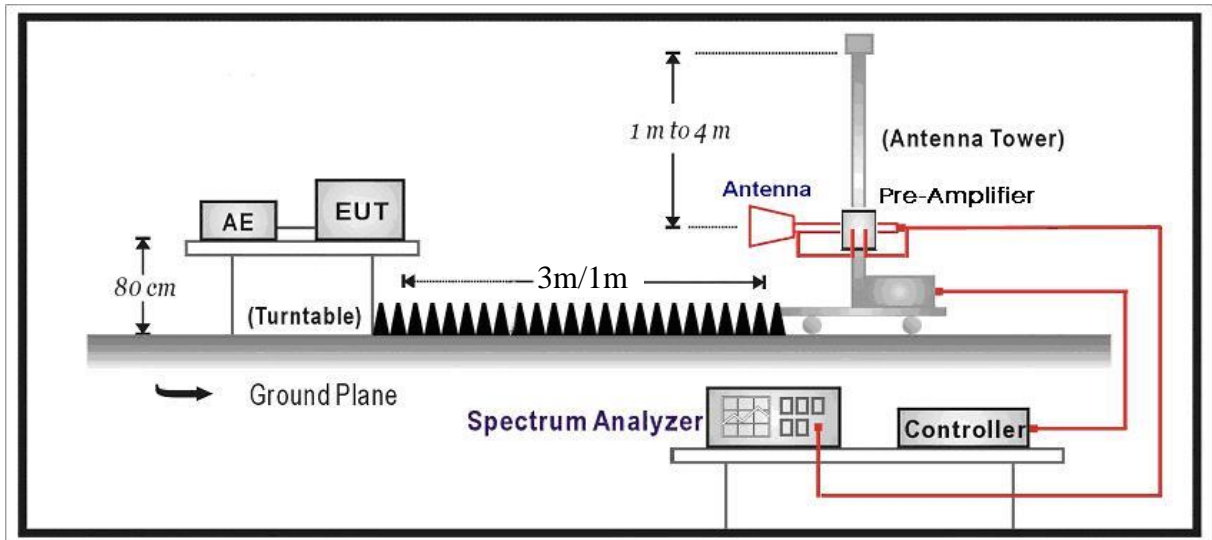
According to Standard: FCC Part 15.109 Class B, ANSI C63.4

### 4.2. Test Setup

#### Below 1GHz Test Setup



#### Above 1GHz Test Setup





### 4.3. Limit

Limits for Radiated disturbance of class A ITE at a measuring distance of 10m	
Frequency of Emission (MHz)	Field Strength dB(µV/m)
30 to 88	39
88 to 216	43.5
216 to 960	46.4
Above 960	49.5

NOTE: The lower limit shall apply at the transition frequency.

Limits for Radiated disturbance of class A ITE at a measuring distance of 3m	
Frequency of Emission (MHz)	Field Strength dB(µV/m)
1000 to 18000	60

NOTE: The lower limit shall apply at the transition frequency.

Limits for Radiated disturbance of class A ITE at a measuring distance of 1m	
Frequency of Emission (MHz)	Field Strength dB(µV/m)
18000 to 40000	69.5

NOTE: The lower limit shall apply at the transition frequency.

Limits for Radiated disturbance of class B ITE at a measuring distance of 3m	
Frequency of Emission (MHz)	Field Strength dB(µV/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
960 to 18000	54

NOTE: The lower limit shall apply at the transition frequency.

Limits for Radiated disturbance of class B ITE at a measuring distance of 1m	
Frequency of Emission (MHz)	Field Strength dB(µV/m)
18000-40000	63.5
NOTE: The lower limit shall apply at the transition frequency.	

#### 4.4. Test Procedure

The EUT and its simulators are placed on a turntable which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be changed during radiated measurement.

The bandwidth below 1GHz setting on the receiver is 120kHz and above 1GHz is 1MHz.

For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1000
108 to 500	2000
500 to 1000	5000
Above 1000	5 <sup>th</sup> harmonic of the highest frequency or 40GHz, whichever is lower

On any frequency or frequencies below or equal to 1000MHz, the radiated limits shown are based on measuring equipment employing a quasi-peak detector function and above 1000MHz, the radiated limits shown are based measuring equipment employing an average detector function.

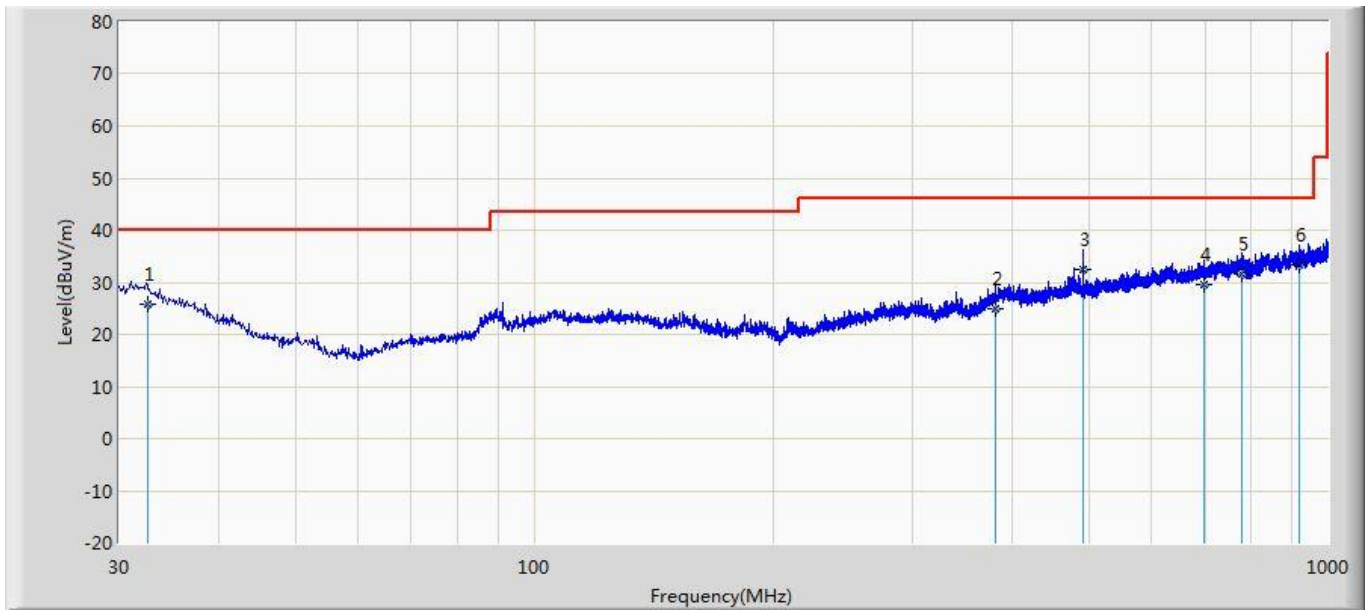
When average radiated emission measurement are included emission measurement Above 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

#### **4.5. Deviation from Test Standard**

No deviation.

### 4.6. Test Result

Engineer: Beck	
Site: AC2	Time: 2020/01/16
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27611(30-1000MHz)	Polarity: Horizontal
EUT: CI-B02GS01S CI1102 module	Power: DC 5V
Note: Mode 1	

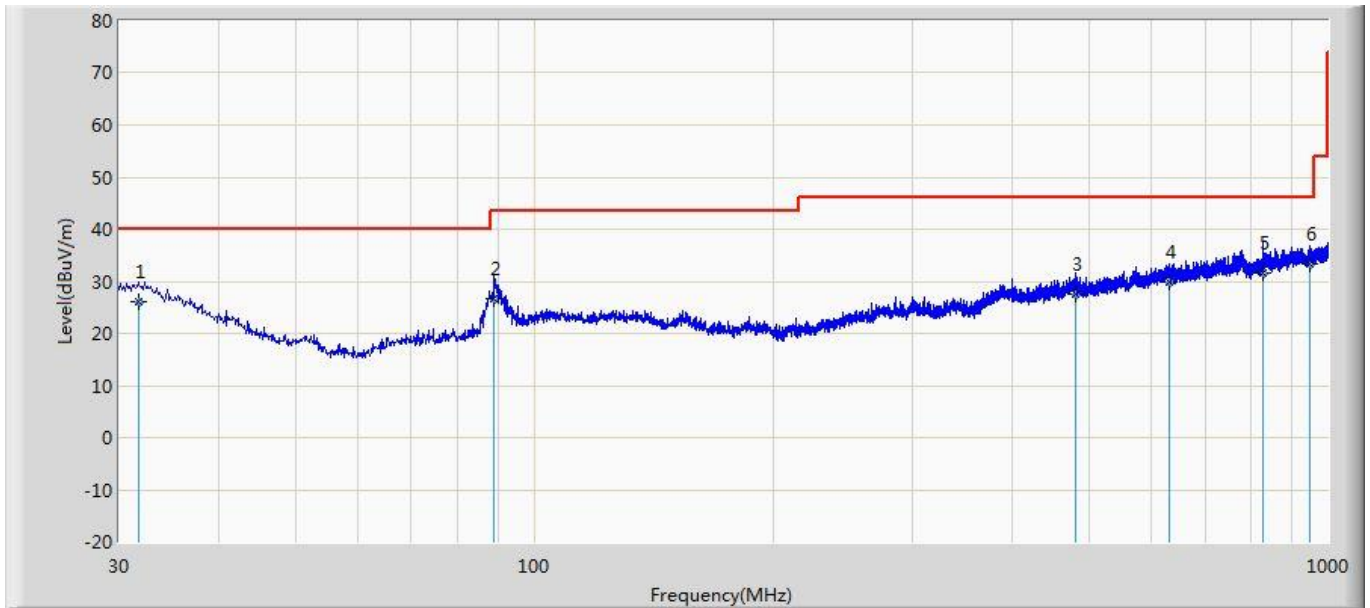


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		32.546	25.763	1.200	-14.237	40.000	18.225	6.338	0.000	100	28	QP
2		381.260	24.969	0.500	-21.031	46.000	16.651	7.818	0.000	100	113	QP
3		491.960	32.549	7.200	-13.451	46.000	17.200	8.149	0.000	100	358	QP
4		699.540	29.697	1.300	-16.303	46.000	19.699	8.697	0.000	100	70	QP
5		780.295	31.706	1.400	-14.294	46.000	21.408	8.898	0.000	100	91	QP
6	*	919.126	33.398	2.500	-12.602	46.000	21.682	9.215	0.000	100	110	QP

**Note:**

1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Beck	
Site: AC2	Time: 2020/01/16
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27611(30-1000MHz)	Polarity: Vertical
EUT: CI-B02GS01S CI1102 module	Power: DC 5V
Note: Mode 1	

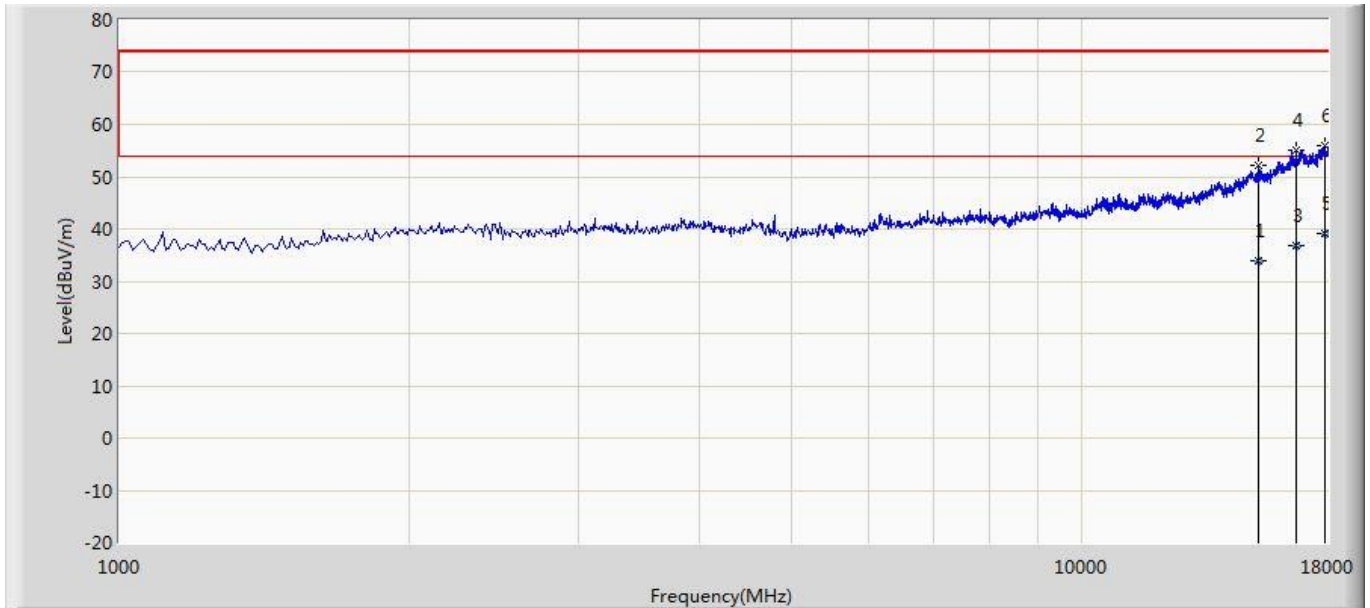


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		31.690	26.046	1.000	-13.954	40.000	18.707	6.339	0.000	100	69	QP
2		88.927	26.636	9.300	-16.864	43.500	10.621	6.715	0.000	100	138	QP
3		481.414	27.662	1.400	-18.338	46.000	18.144	8.118	0.000	100	240	QP
4		630.790	29.764	1.700	-16.236	46.000	19.545	8.519	0.000	100	270	QP
5		827.097	31.730	2.000	-14.270	46.000	20.722	9.007	0.000	100	50	QP
6	*	947.378	33.316	1.900	-12.684	46.000	22.133	9.283	0.000	100	99	QP

**Note:**

1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Beck	
Site: AC5	Time: 2020/01/16
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: CI-B02GS01S CI1102 module	Power: DC 5V
Note: Mode 1	

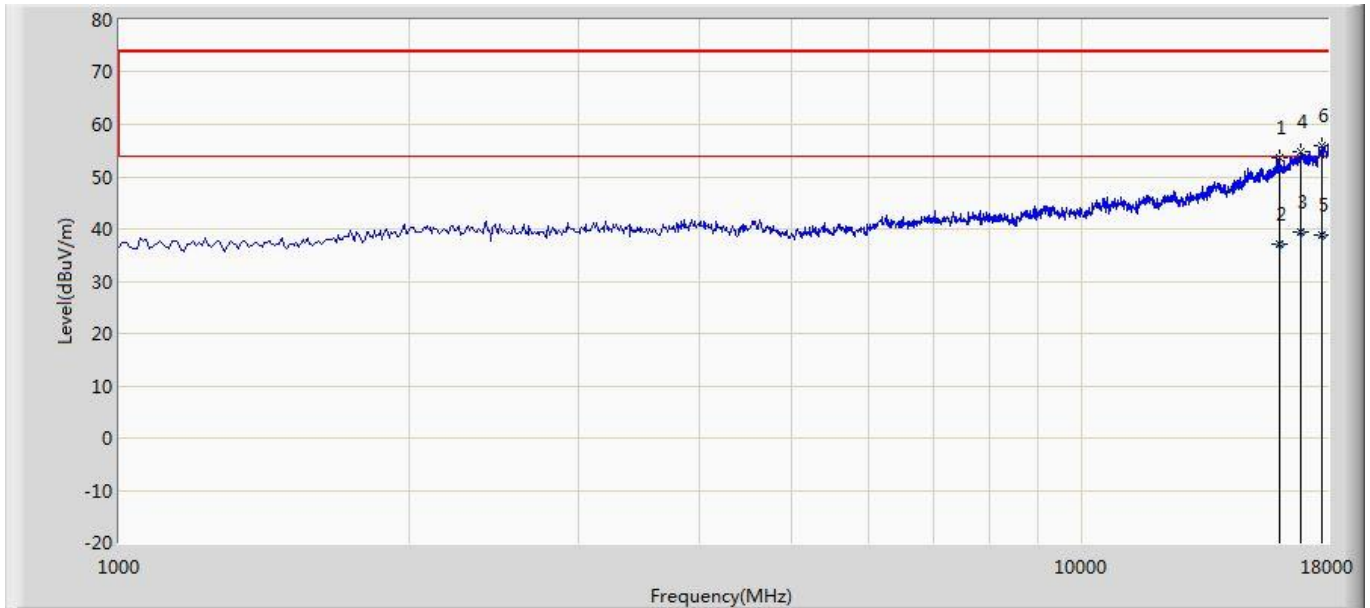


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		15253.326	33.921	16.363	-20.079	54.000	40.544	10.307	33.293	100	136	AV
2		15254.500	52.197	34.651	-21.803	74.000	40.542	10.300	33.296	100	136	PK
3		16673.326	36.784	17.326	-17.216	54.000	41.330	11.389	33.261	200	96	AV
4		16674.000	55.200	35.733	-18.800	74.000	41.330	11.391	33.254	200	96	PK
5	*	17845.326	39.011	16.326	-14.989	54.000	41.852	12.996	32.163	100	198	AV
6		17847.000	55.970	33.216	-18.030	74.000	41.855	12.971	32.072	100	198	PK

**Note:**

1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Beck	
Site: AC5	Time: 2020/01/16
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: CI-B02GS01S CI1102 module	Power: DC 5V
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		16011.000	53.484	34.768	-20.516	74.000	41.302	10.904	33.490	100	193	PK
2		16011.327	37.035	18.326	-16.965	54.000	41.302	10.905	33.498	100	193	AV
3	*	16843.347	39.435	19.326	-14.565	54.000	41.262	11.496	32.649	100	198	AV
4		16844.000	54.757	34.614	-19.243	74.000	41.262	11.498	32.617	100	198	PK
5		17770.326	38.748	16.326	-15.252	54.000	41.732	12.973	32.283	100	128	AV
6		17770.500	55.941	33.507	-18.059	74.000	41.733	12.972	32.270	100	128	PK

**Note:**

1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

#### 4.7. Test Photograph

Test Mode: Mode 1

Description: Front View of Radiated disturbance Test Setup (Below 1GHz)



Test Mode: Mode 1

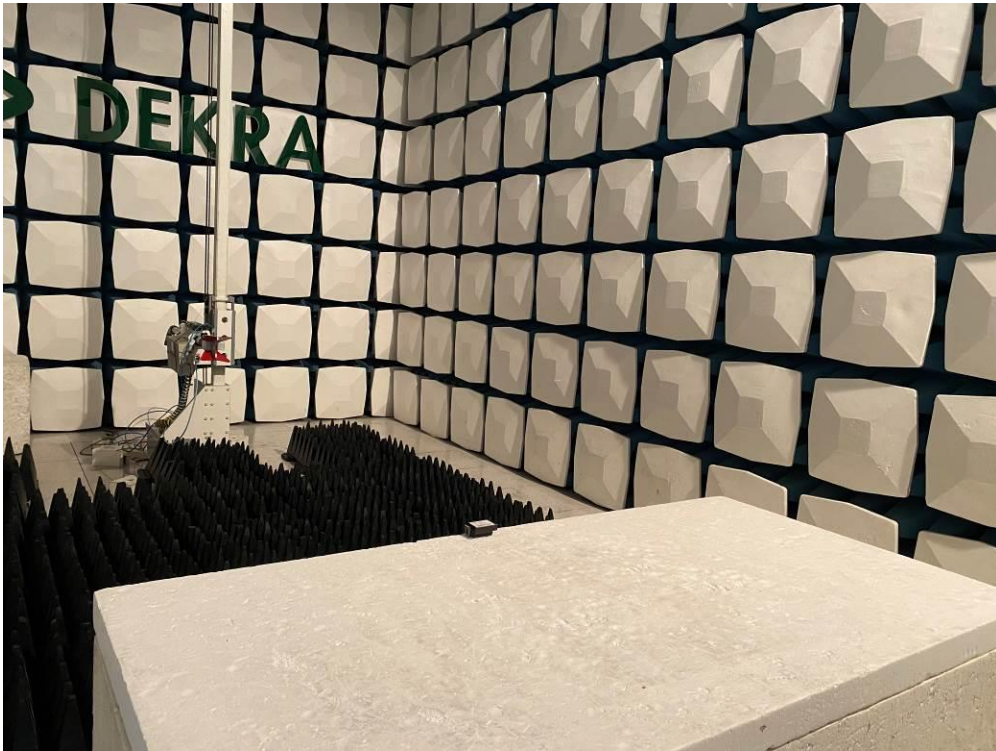
Description: Rear View of Radiated disturbance Test Setup (Below 1GHz)





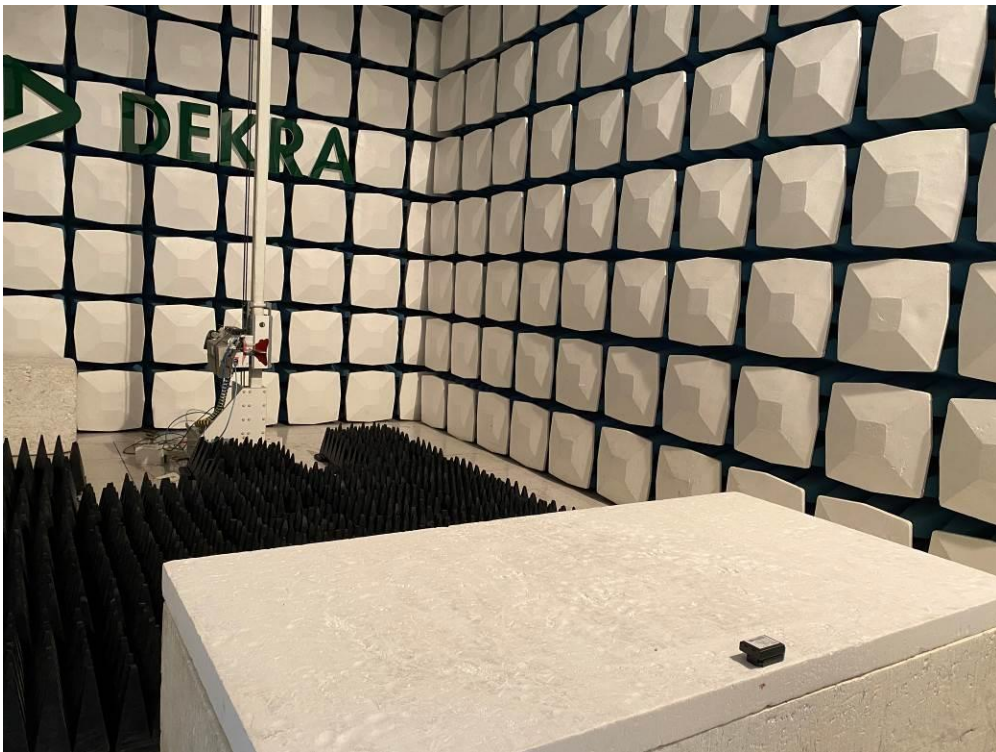
Test Mode: Mode 1

Description: Front View of Radiated disturbance Test Setup (Above 1GHz)



Test Mode: Mode 1

Description: Rear View of Radiated disturbance Test Setup (Above 1GHz)



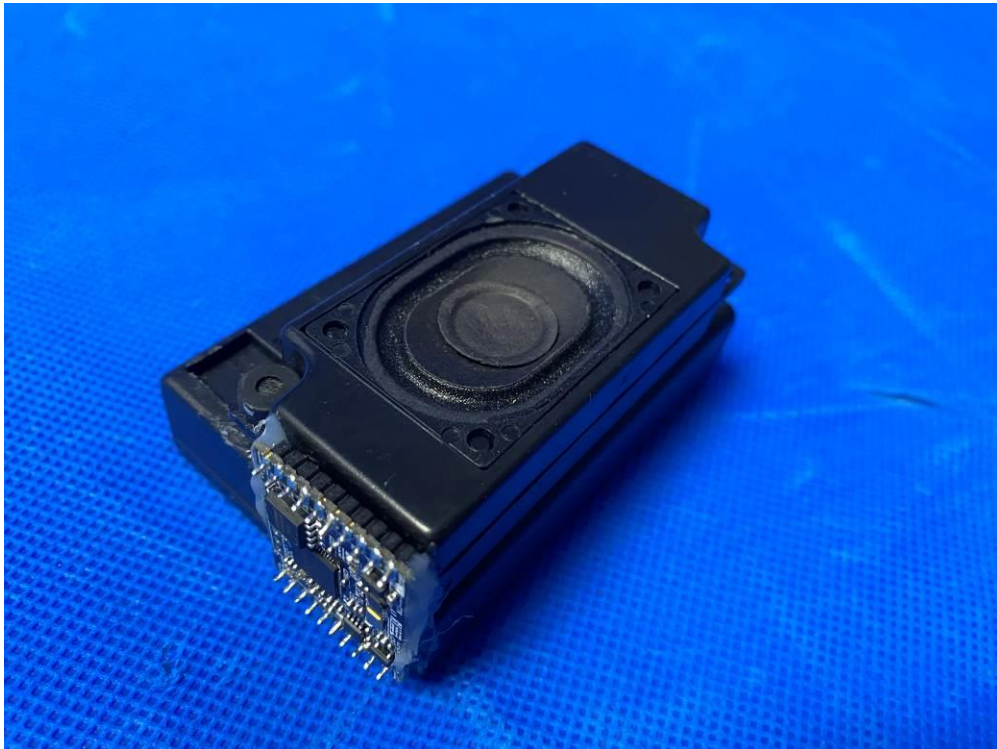
## 5. Attachment

### EUT Photograph

(1) EUT Photo



(2) EUT Photo



————— The End —————