



Test Report

Product Name : NFC READER Development Board

Model No. : BCE-45B4523-001

Applicant : HOLTEK SEMICONDUCTOR INC

Address : No.3, Creation Rd. II, Science Park , HsinChu 300,
Taiwan, R.O.C.

Date of Receipt : Aug. 27, 2020

Issued Date : Sep. 18, 2020

Report No. : 2090262R-E3032160657

Version : V1.0

The test results relate only to the samples tested.

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Product Name : NFC READER Development Board
Applicant : HOLTEK SEMICONDUCTOR INC
Address : No.3, Creation Rd. II, Science Park , HsinChu 300, Taiwan,
R.O.C.
Manufacturer : HOLTEK SEMICONDUCTOR INC
Model No. : BCE-45B4523-001
Module Voltage : DC 5V
EUT Voltage : DC 5V
Applicable Standard : FCC:
FCC CFR Title 47 Part 15 Subpart C Section 15.225
ANSI C63.10: 2013
CE:
ETSI EN 300 330 V2.1.1 (2017-02)
Laboratory Name : Hsin Chu Laboratory
Address : No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township,
Hsinchu County 310, Taiwan, R.O.C.
TEL: +886-3-582-8001 / FAX: +886-3-582-8958
Test Result : Pass

Test Item		
FCC		
Field strength	☒ Pass	☐ Fail
Emission Mask	☒ Pass	☐ Fail
Radiated Emission	☒ Pass	☐ Fail
Frequency tolerance	☒ Pass	☐ Fail
CE		
Transmitter H-field	☒ Pass	☐ Fail
Transmitter radiated spurious domain emission limits	☒ Pass	☐ Fail
Spectrum Mask	☒ Pass	☐ Fail
Transmitter Frequency stability	☒ Pass	☐ Fail



(Louis Hsu / Deputy Manager)



(Scott Chang / Engineer)

TABLE OF CONTENTS

Description	Page
1. List of Test Equipment	4
2. FCC Test Data	6
2.1. Field strength.....	6
2.1.1. Test Result.....	6
2.2. Emission Mask	7
2.2.1. Test Result.....	7
2.3. Radiated Emission	11
2.3.1. Test Result.....	11
2.4. Frequency tolerance.....	13
2.4.1. Test Result.....	13
3. CE Test Data	14
3.1. Transmitter H-field	14
3.1.1. Test Result.....	14
3.2. Transmitter radiated spurious domain emission	23
3.2.1. Test Result.....	23
3.3. Spectrum Mask.....	28
3.3.1. Test Result.....	28
3.4. Transmitter Frequency stability	31
3.4.1. Test Result.....	31
Attachment 1	32
Test Setup Photograph.....	32
Attachment 2	44
EUT Photograph.....	44

1. List of Test Equipment

FCC:

Field strength/ Emission Mask / Radiated Emission CB4-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2019/10/21	2020/10/20
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2020/02/21	2021/02/20
Bilog Antenna	Teseq	CBL6112D	23191	2020/06/12	2021/06/11
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2020/06/04	2021/06/03
Horn Antenna	Schwarzbeck	BBHA 9170	202	2019/12/27	2020/12/26
Pre-Amplifier	DEKRA	AP-025C	12183122	2020/09/03	2021/09/02
Pre-Amplifier	EMCI	EMC11830I	980366	2019/12/03	2020/12/02
Pre-Amplifier	DEKRA	AP-400C	201801231	2019/12/03	2020/12/02
Horn Antenna	Schwarzbeck	BBHA 9120D	01656	2019/10/25	2020/10/24
Band Reject Filter	Micro-Tronics	BRM50702	G192	2020/03/09	2021/03/08
Signal Analyzer	R&S	FSV40	101435	2020/06/24	2021/06/23
Coaxial Cable(10m)	Suhner	SF102_SF104	CB4-H	2020/04/25	2021/04/24
EMI system	DEKRA	Version 1.0	CB4-H	NA	NA

Frequency tolerance / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2020/06/03	2021/06/02
Spectrum Analyzer	Keysight	N9010B	MY57110159	2020/04/15	2021/04/14
Spectrum Analyzer	Agilent	N9010A	US47140172	2020/06/18	2021/06/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29

CE:

Transmitter H-field / Spectrum Mask CB4-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Test Receiver	R&S	ESCS 30	836858/022	2020/02/25	2021/02/24
Horn Antenna	Schwarzbeck	BBHA 9120D	312	2020/08/28	2021/08/27
Magnetic Loop Antenna	Teseq	HLA 6121	44287	2019/09/24	2020/09/23
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
Pre-Amplifier	EMCI	EMC0031835	980233	2019/12/20	2020/12/19
Coaxial Cable(10m)	Suhner	SF102_SF104	CB4-H	2020/04/25	2021/04/24

Transmitter radiated spurious domain emission limits / CB3-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Test Receiver	R&S	ESCS 30	836858/022	2020/02/25	2021/02/24
Horn Antenna	Schwarzbeck	BBHA 9120D	312	2020/08/28	2021/08/27
Magnetic Loop Antenna	Teseq	HLA 6121	44287	2019/09/24	2020/09/23
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
Pre-Amplifier	EMCI	EMC0031835	980233	2019/12/20	2020/12/19
Coaxial Cable(19m)	Suhner	SF104	CB3-H_1	2020/07/25	2021/07/24
EMI system	DEKRA	Version 1.0	CB3-H	NA	NA

Transmitter Frequency stability / SR12-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2019/06/28	2020/06/27
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2020/02/21	2021/02/20
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29
Signal Analyzer	R&S	FSV7	101650	2020/03/23	2021/03/22
Signal Analyzer	R&S	FSVA40	101455	2019/10/21	2020/10/20
Spectrum Analyzer	Keysight	N9030B	MY57140404	2019/06/18	2020/06/17

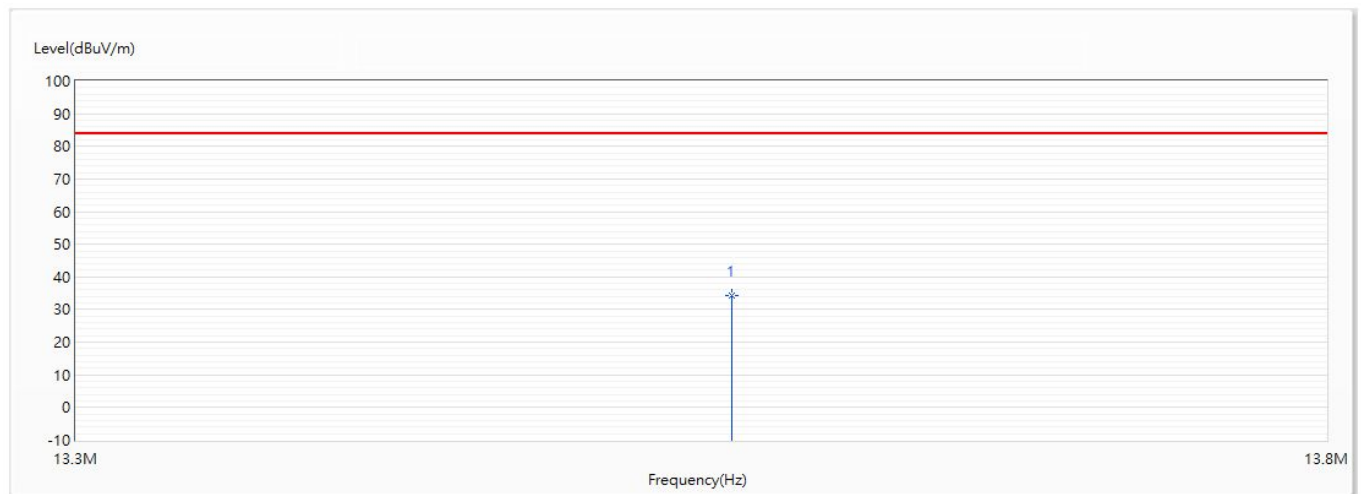
Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2. FCC Test Data

2.1. Field strength

2.1.1. Test Result

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Y and EUT=Y		



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Detector Type
* 1	13.56	34.41	84.00	-49.59	53.07	-18.66	PK

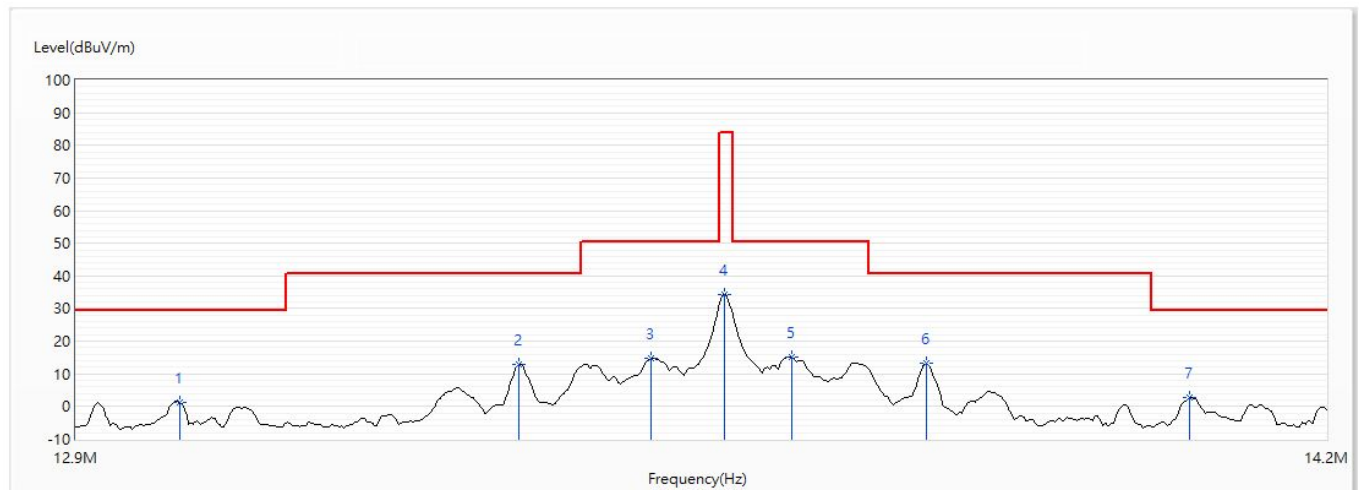
Note:

1. All reading levels is Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

2.2. Emission Mask

2.2.1. Test Result

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Y and EUT=Y		

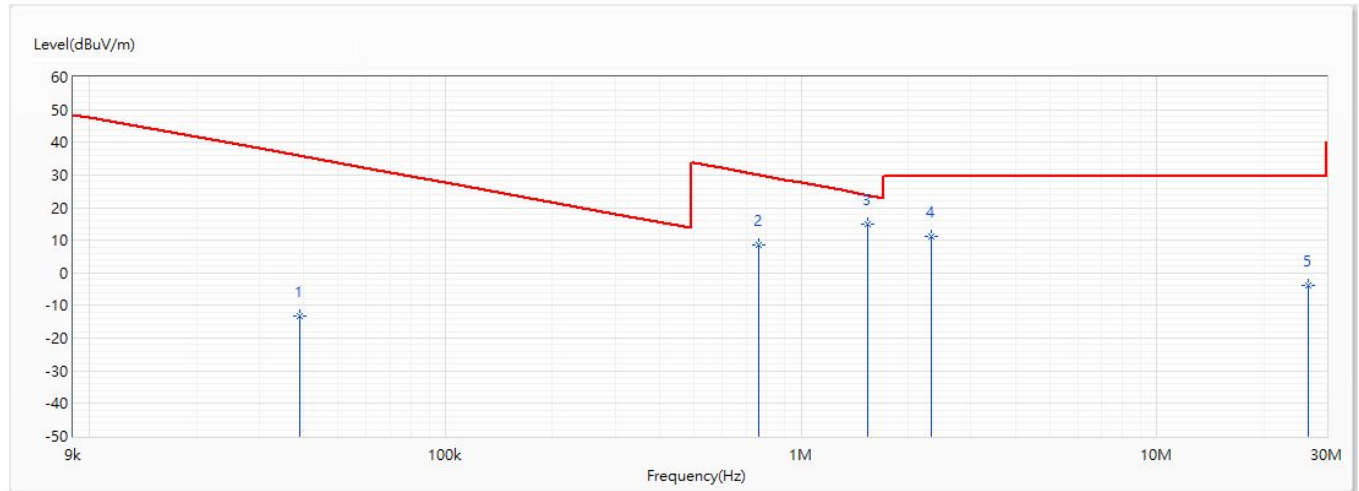


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Detector Type
1	13.003	1.29	29.50	-28.21	19.97	-18.68	PK
2	13.346	12.76	40.50	-27.74	31.43	-18.67	PK
3	13.482	14.71	50.50	-35.79	33.37	-18.66	PK
4	13.559	34.42	84.00	-49.58	53.08	-18.66	PK
5	13.629	15.01	50.50	-35.49	33.66	-18.65	PK
6	13.771	13.15	40.50	-27.35	31.80	-18.65	PK
* 7	14.052	2.74	29.50	-26.76	21.38	-18.64	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Y and EUT=Y		

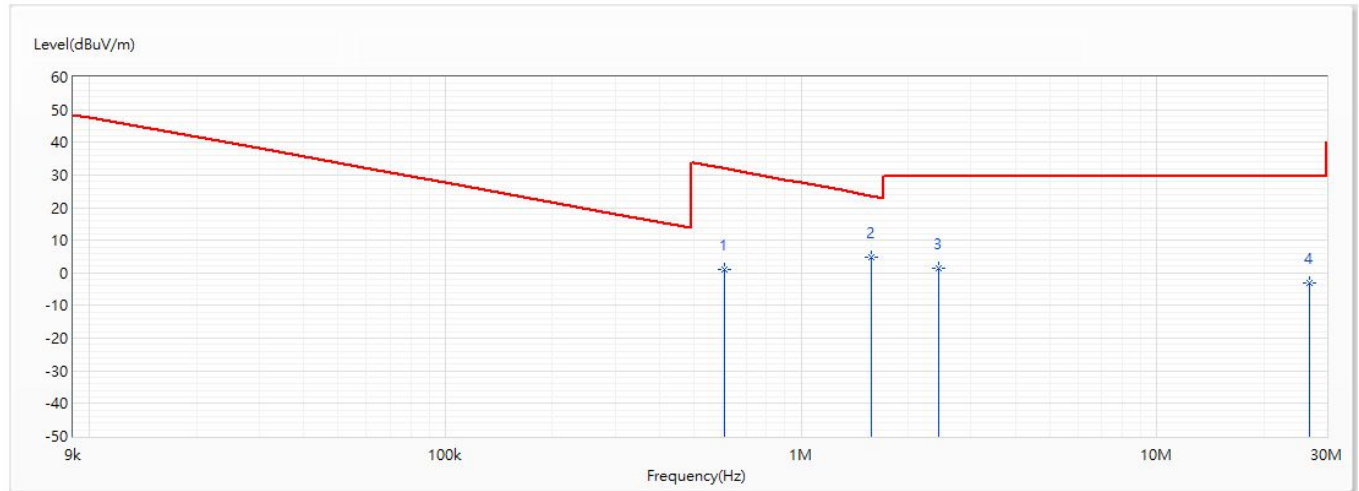


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Detector Type
1	0.039	-13.05	35.78	-48.83	47.46	-60.51	PK
2	0.759	8.39	30.00	-21.61	28.74	-20.35	PK
* 3	1.539	14.89	23.86	-8.97	35.24	-20.35	PK
4	2.318	11.17	29.54	-18.37	31.60	-20.43	PK
5	26.641	-3.95	29.54	-33.49	14.38	-18.33	PK

Note:

1. All reading levels is Quasi-Peak value.
2. " * ", means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=X and EUT=Y		

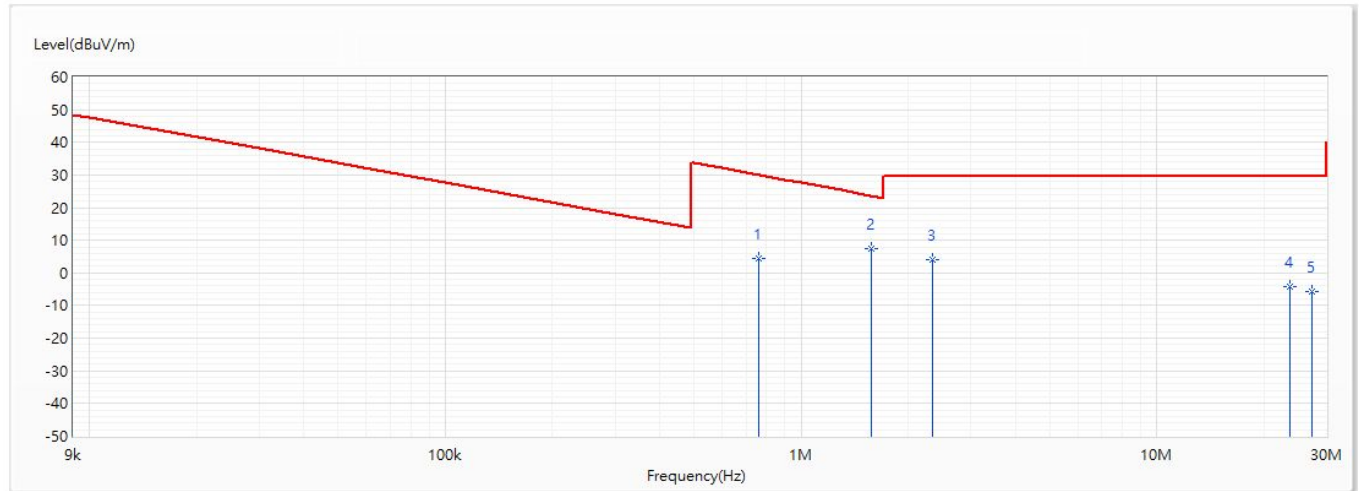


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Detector Type
1	0.609	1.07	31.91	-30.84	21.45	-20.38	PK
* 2	1.569	4.92	23.69	-18.77	25.28	-20.36	PK
3	2.438	1.43	29.54	-28.11	21.87	-20.44	PK
4	26.821	-3.00	29.54	-32.54	15.33	-18.33	PK

Note:

1. All reading levels is Quasi-Peak value.
2. " * ", means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Z and EUT=Y		



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Detector Type
1	0.759	4.52	30.00	-25.48	24.87	-20.35	PK
* 2	1.569	7.51	23.69	-16.18	27.87	-20.36	PK
3	2.348	4.12	29.54	-25.42	24.55	-20.43	PK
4	23.702	-4.38	29.54	-33.92	13.98	-18.36	PK
5	27.301	-5.63	29.54	-35.17	12.70	-18.33	PK

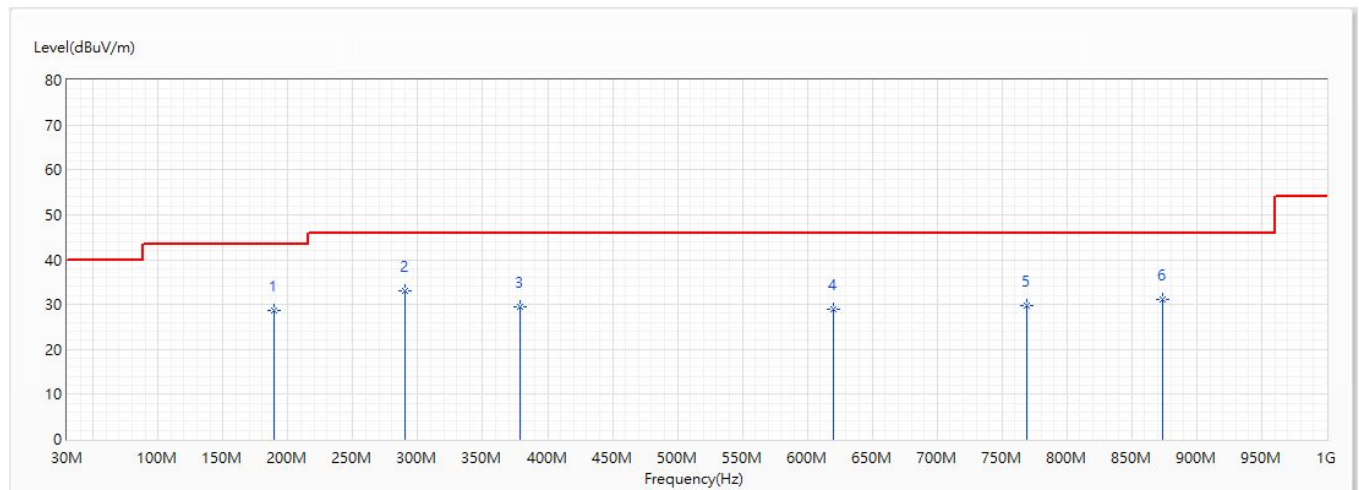
Note:

1. All reading levels is Quasi-Peak value.
2. " * ", means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

2.3. Radiated Emission

2.3.1. Test Result

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity	Horizontal	Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_EUT=Y		

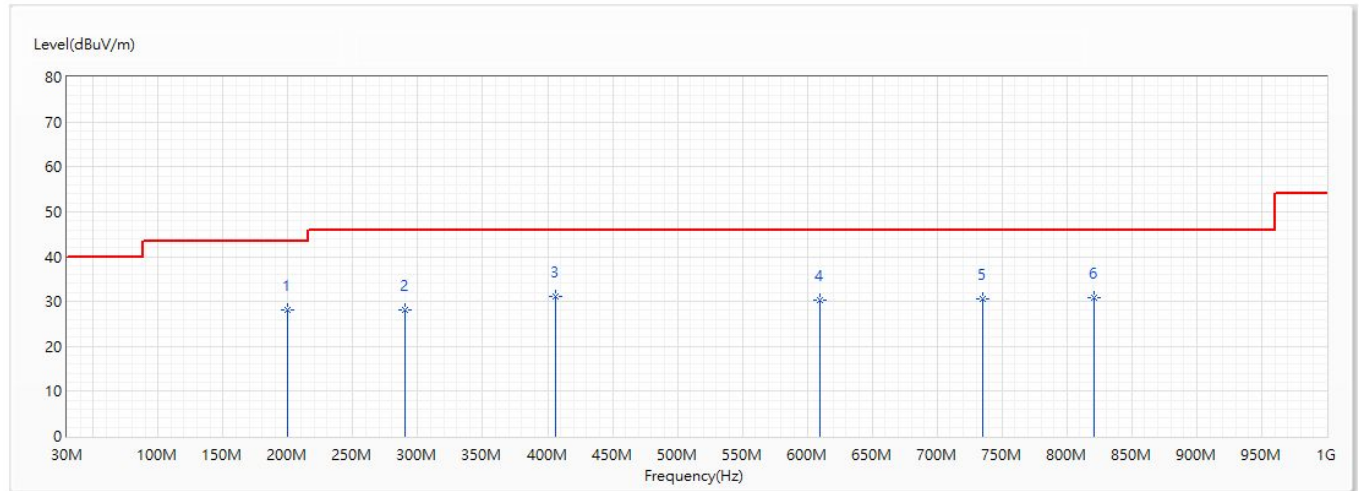


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Detector Type
1	189.08	28.76	43.50	-14.74	34.80	-6.04	QP
* 2	289.96	33.06	46.00	-12.94	34.69	-1.63	QP
3	379.2	29.42	46.00	-16.58	28.54	0.88	QP
4	619.76	28.93	46.00	-17.07	23.72	5.21	QP
5	769.14	29.78	46.00	-16.22	22.90	6.88	QP
6	873.9	31.01	46.00	-14.99	22.93	8.08	QP

Note:

1. All reading levels is Quasi-Peak value.
2. " * ", means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity	Vertical	Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_EUT=Y		



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB/m)	Detector Type
1	199.75	28.16	43.50	-15.34	33.20	-5.04	QP
2	289.96	28.12	46.00	-17.88	29.75	-1.63	QP
* 3	406.36	31.01	46.00	-14.99	29.02	1.99	QP
4	610.06	30.21	46.00	-15.79	25.02	5.19	QP
5	735.19	30.61	46.00	-15.39	24.02	6.59	QP
6	820.55	30.86	46.00	-15.14	23.60	7.26	QP

Note:

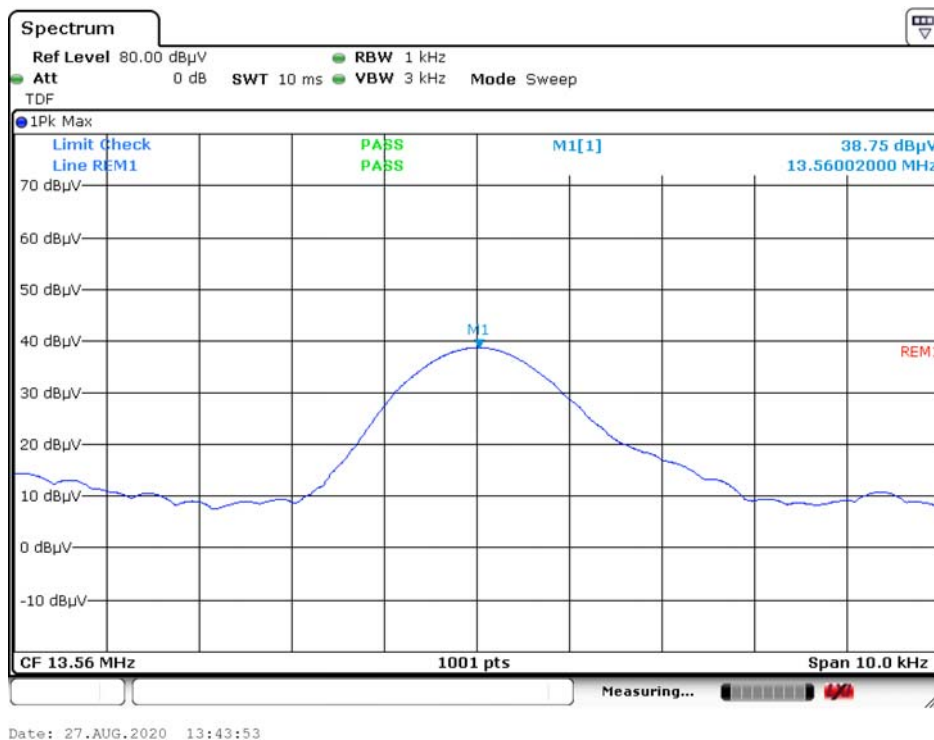
1. All reading levels is Quasi-Peak value.
2. " * ", means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

2.4. Frequency tolerance

2.4.1. Test Result

Model No	BCE-45B4523-001		
Test Item	Frequency Tolerance		
Test Mode	Mode1: Transmit		
Date of Test	2020/08/27	Test Site	SR12-H
Temperature (°C)	23.0	Humidity (%RH)	62.0

13.56 MHz



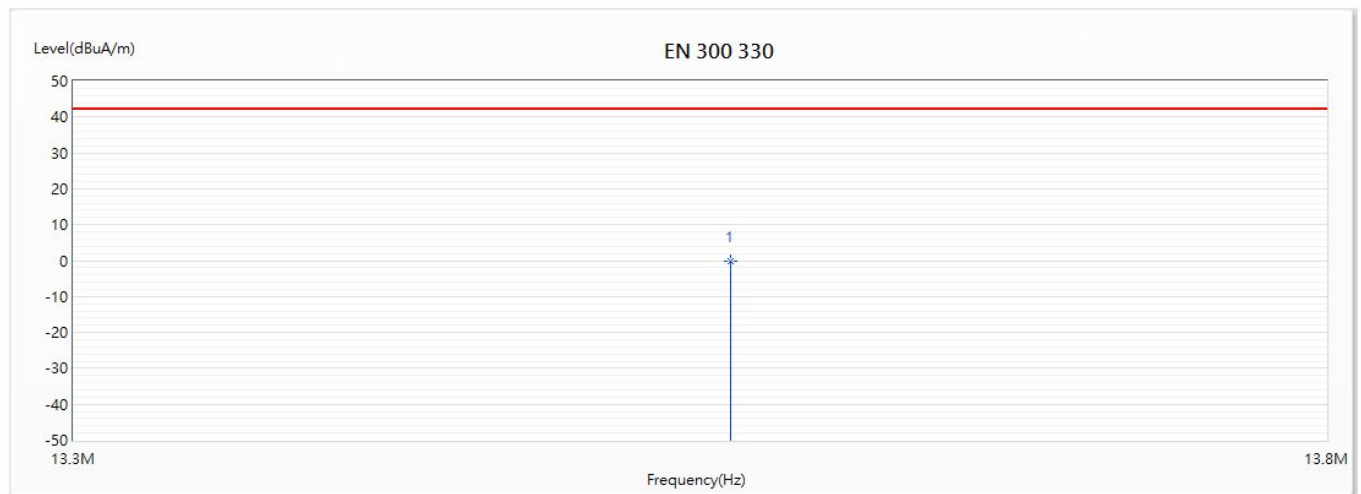
Frequency (MHz)	Reading (MHz)	Deviation (Hz)	Limit (Hz)
13.56	13.56002	20	±1356

3. CE Test Data

3.1. Transmitter H-field

3.1.1. Test Result

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Y and EUT=X		

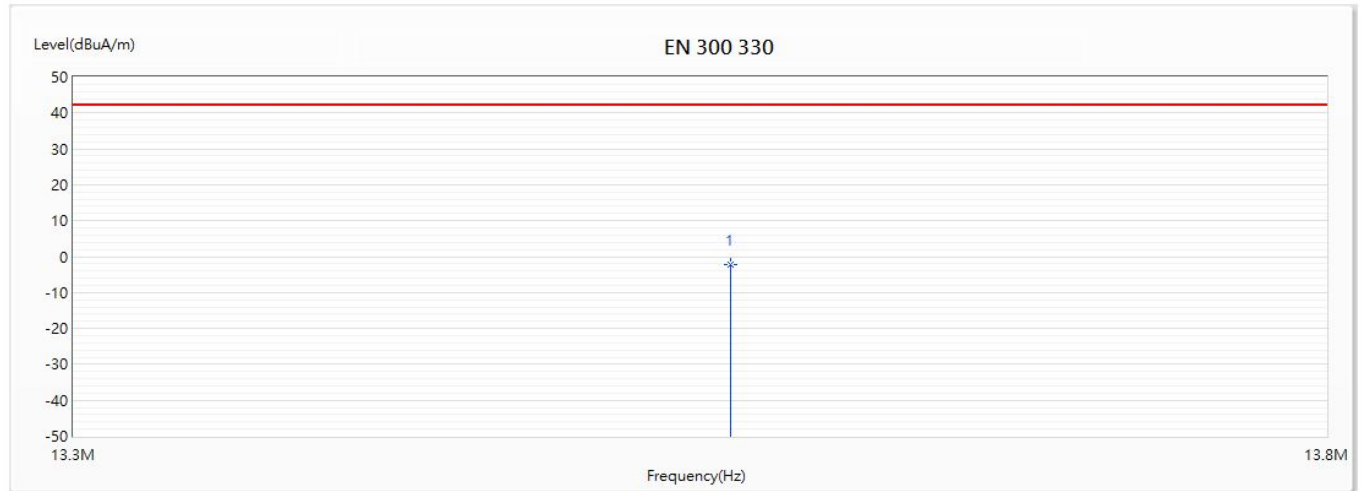


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
* 1	13.56	-0.28	42.00	-42.28	50.79	-51.07	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=X and EUT=X		

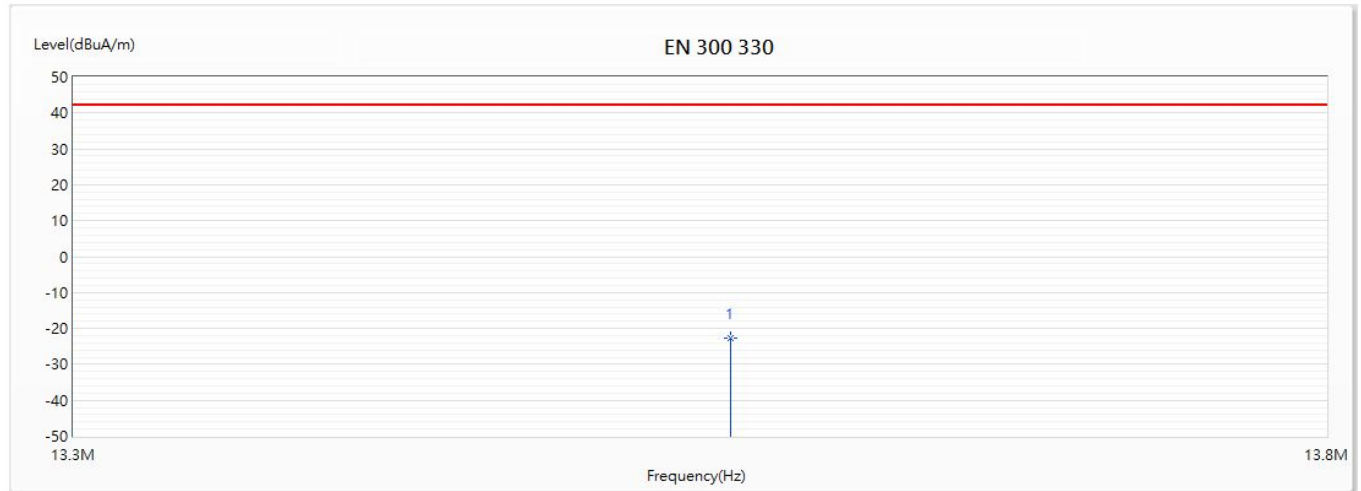


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
* 1	13.56	-2.36	42.00	-44.36	48.71	-51.07	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Z and EUT=X		

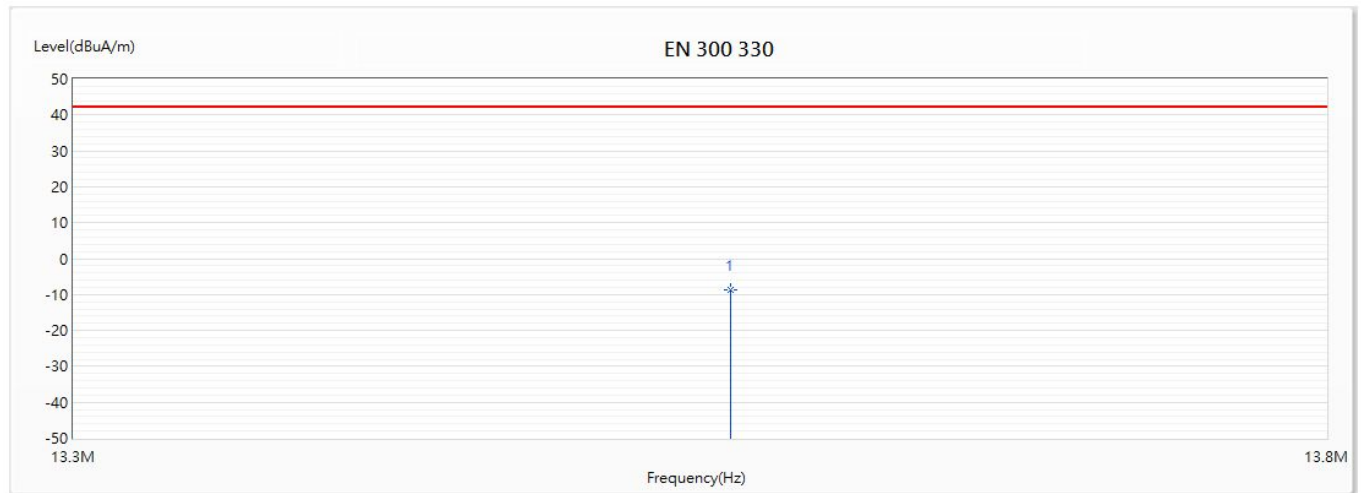


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
* 1	13.56	-22.79	42.00	-64.79	28.28	-51.07	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Y and EUT=Z		

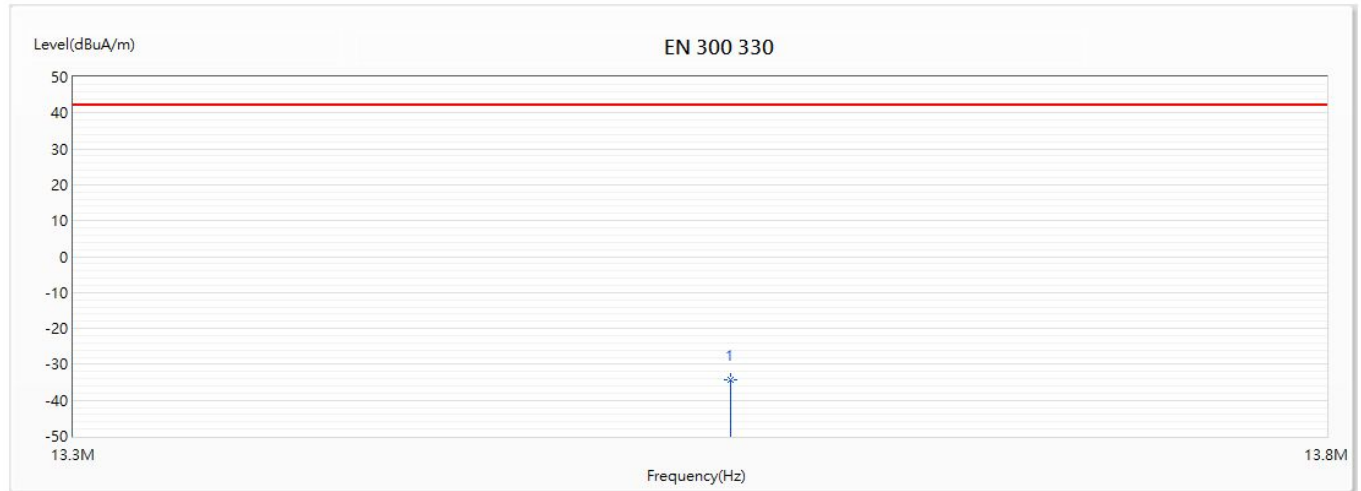


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
* 1	13.56	-8.79	42.00	-50.79	42.28	-51.07	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=X and EUT=Z		

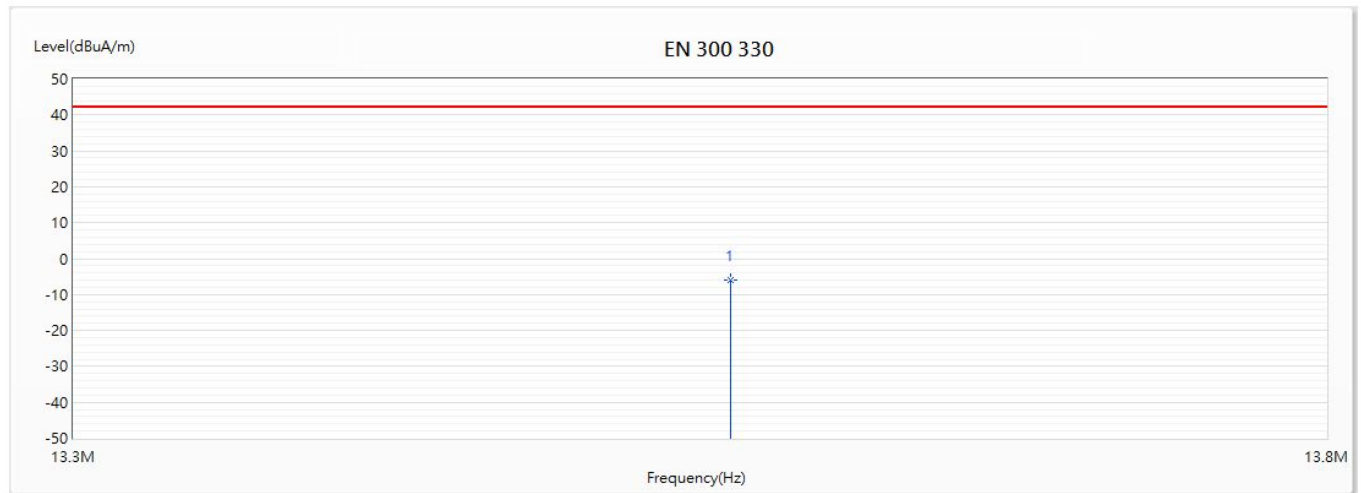


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
* 1	13.56	-34.42	42.00	-76.42	16.65	-51.07	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Z and EUT=Z		

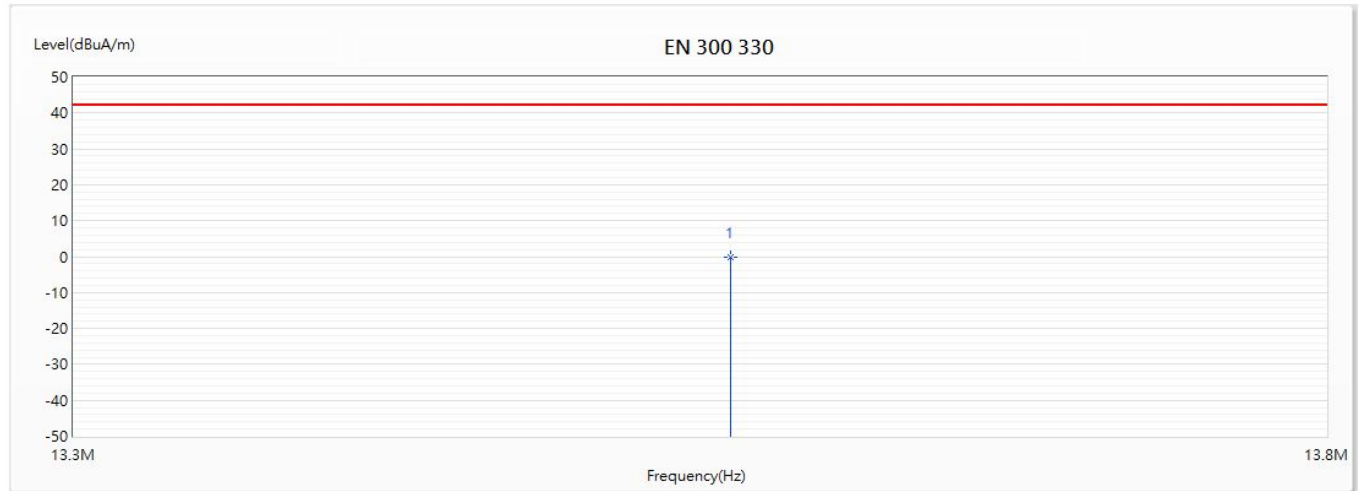


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
* 1	13.56	-6.12	42.00	-48.12	44.95	-51.07	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Y and EUT=Y		

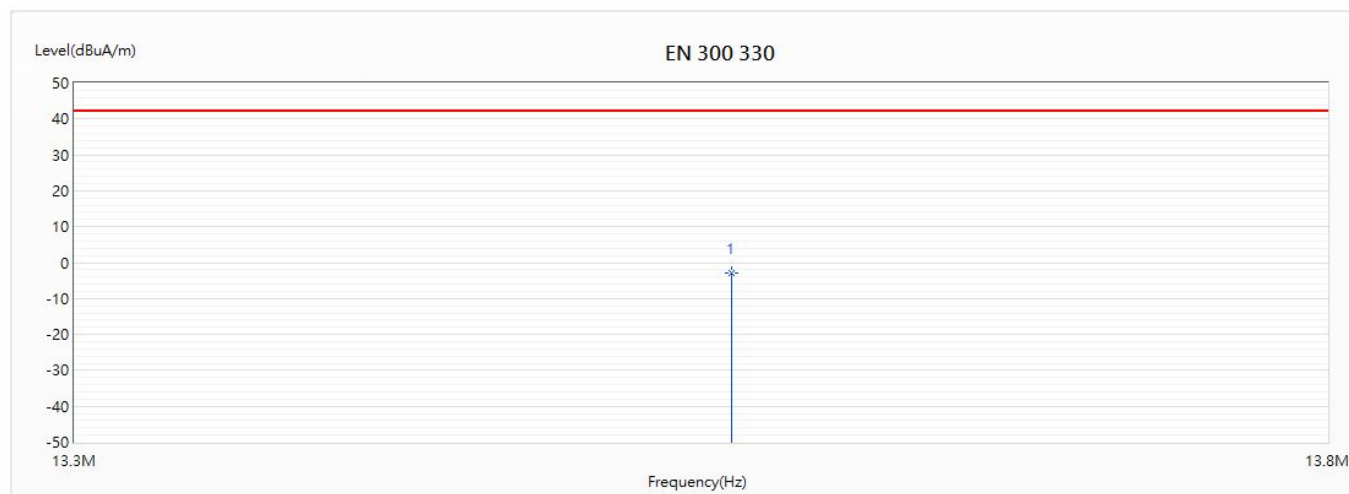


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
* 1	13.56	-0.25	42.00	-42.25	50.82	-51.07	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=X and EUT=Y		

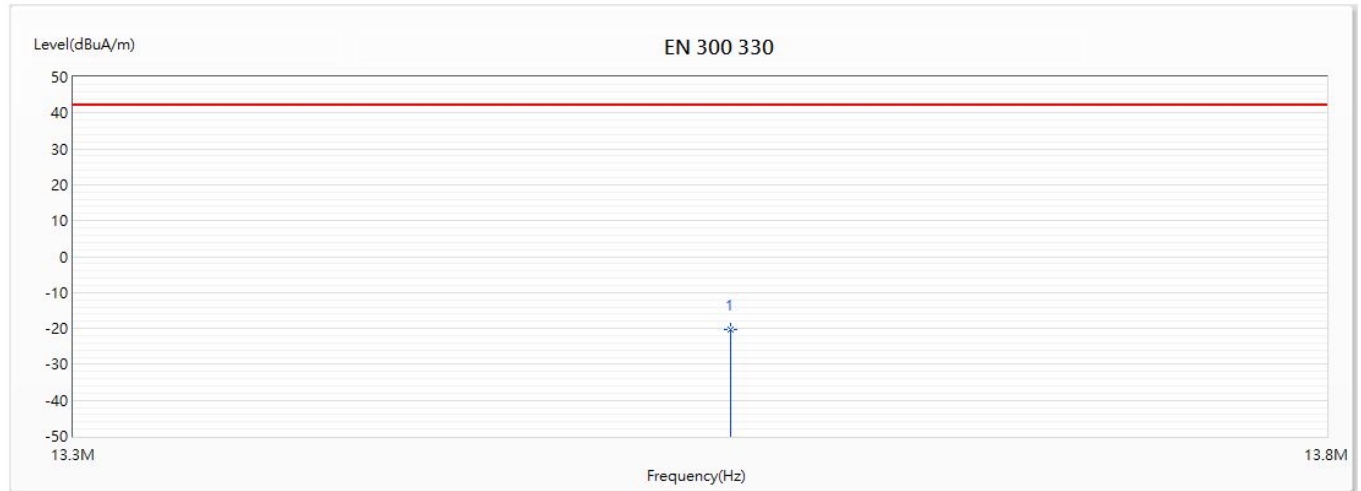


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
* 1	13.56	-2.78	42.00	-44.78	48.29	-51.07	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Z and EUT=Y		



No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
* 1	13.56	-20.25	42.00	-62.25	30.82	-51.07	PK

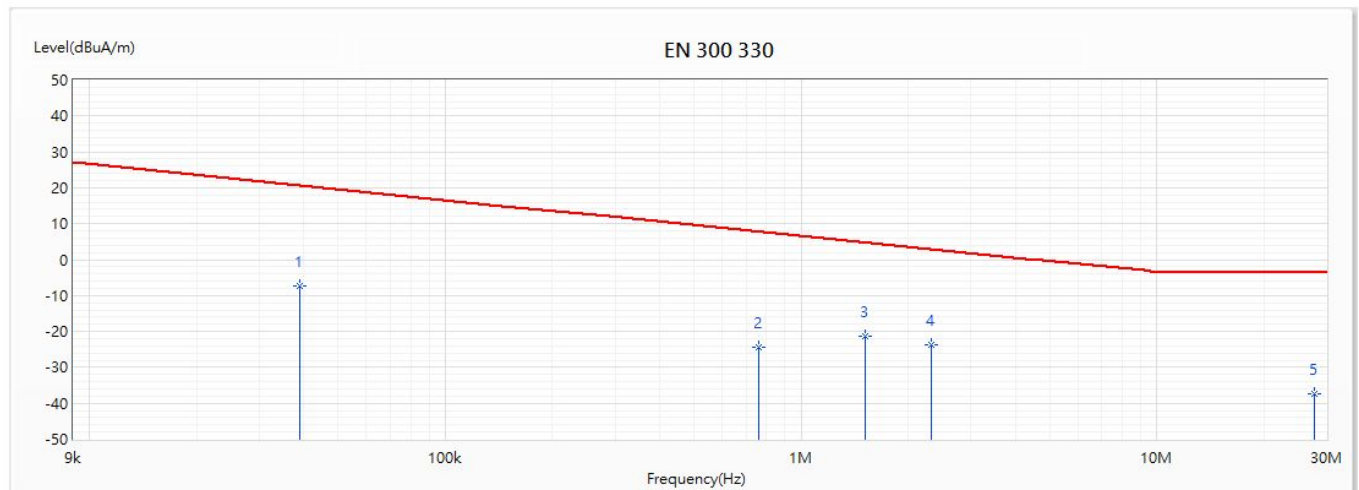
Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

3.2. Transmitter radiated spurious domain emission

3.2.1. Test Result

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Y and EUT=Y		

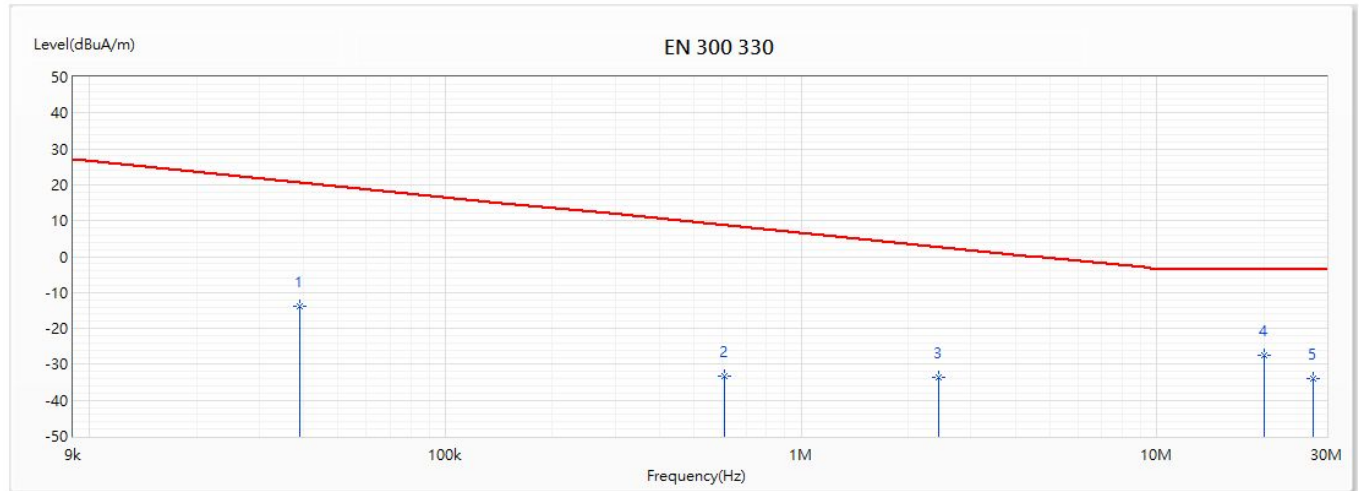


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
1	0.039	-7.29	20.65	-27.95	45.63	-52.92	PK
2	0.759	-24.32	7.81	-32.13	28.44	-52.76	PK
* 3	1.509	-21.17	4.83	-26.00	31.59	-52.76	PK
4	2.318	-23.55	2.97	-26.52	29.29	-52.84	PK
5	27.721	-37.37	-3.50	-33.87	13.36	-50.73	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=X and EUT=Y		

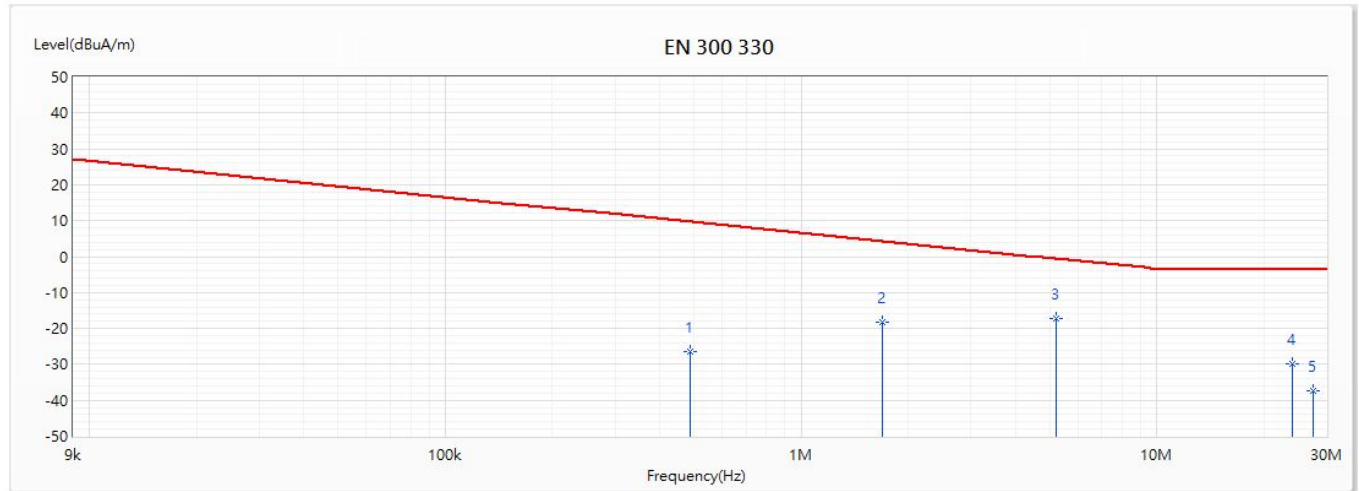


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
1	0.039	-13.75	20.65	-34.40	39.17	-52.92	PK
2	0.609	-33.35	8.76	-42.11	19.44	-52.79	PK
3	2.438	-33.59	2.75	-36.35	19.26	-52.85	PK
* 4	20.043	-27.58	-3.50	-24.08	23.23	-50.81	PK
5	27.451	-33.87	-3.50	-30.37	16.87	-50.74	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Z and EUT=Y		

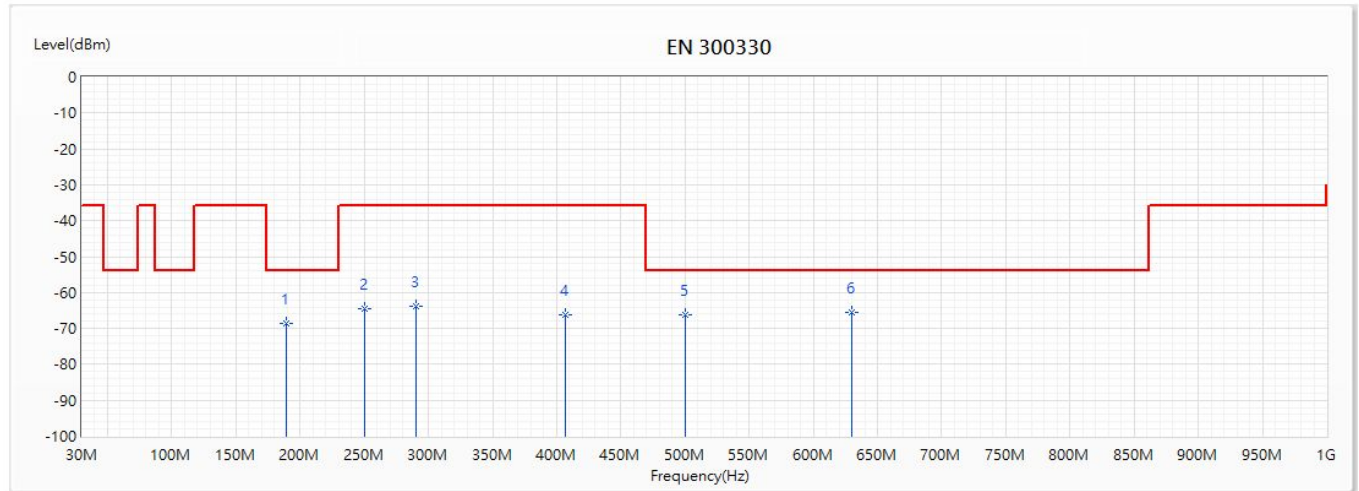


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
1	0.489	-26.39	9.71	-36.10	26.44	-52.83	PK
2	1.688	-18.22	4.35	-22.56	34.56	-52.78	PK
* 3	5.227	-17.10	-0.55	-16.56	35.73	-52.83	PK
4	23.972	-29.94	-3.50	-26.44	20.83	-50.77	PK
5	27.481	-37.54	-3.50	-34.04	13.20	-50.74	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB3-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity	Horizontal	Temperature (°C)	25.1
Test Condition	0	Humidity (%RH)	57.0
Note	NFC-13.56MHz_RE_TX		

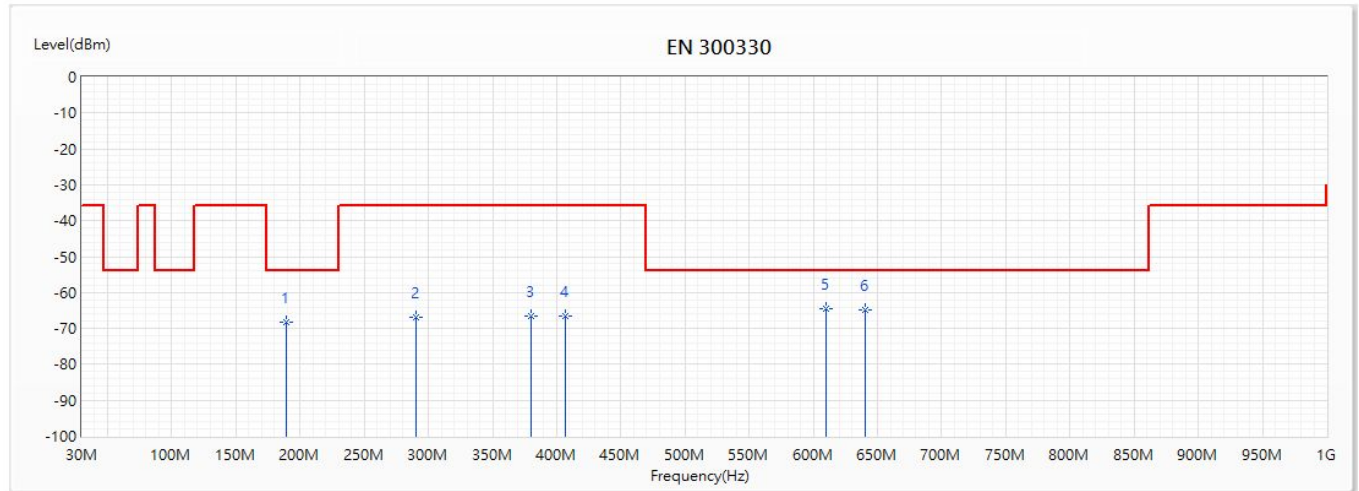


No	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Reading Level (dBm)	Correct Factor (dB/m)	Detector Type
1	189.565	-68.76	-54.00	-14.76	-56.82	-11.94	PK
2	250.19	-64.53	-36.00	-28.53	-56.42	-8.11	PK
3	289.96	-63.77	-36.00	-27.77	-57.02	-6.75	PK
4	406.845	-66.12	-36.00	-30.12	-62.00	-4.12	PK
5	499.965	-66.21	-54.00	-12.21	-64.57	-1.64	PK
* 6	629.945	-65.40	-54.00	-11.40	-64.52	-0.88	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB3-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity	Vertical	Temperature (°C)	25.1
Test Condition	0	Humidity (%RH)	57.0
Note	NFC-13.56MHz_RE_TX		



No	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Reading Level (dBm)	Correct Factor (dB/m)	Detector Type
1	189.565	-68.39	-54.00	-14.39	-57.77	-10.62	PK
2	289.96	-66.89	-36.00	-30.89	-58.99	-7.90	PK
3	379.685	-66.43	-36.00	-30.43	-61.27	-5.16	PK
4	406.845	-66.71	-36.00	-30.71	-62.25	-4.46	PK
* 5	610.06	-64.59	-54.00	-10.59	-63.87	-0.72	PK
6	640.615	-64.83	-54.00	-10.83	-64.00	-0.83	PK

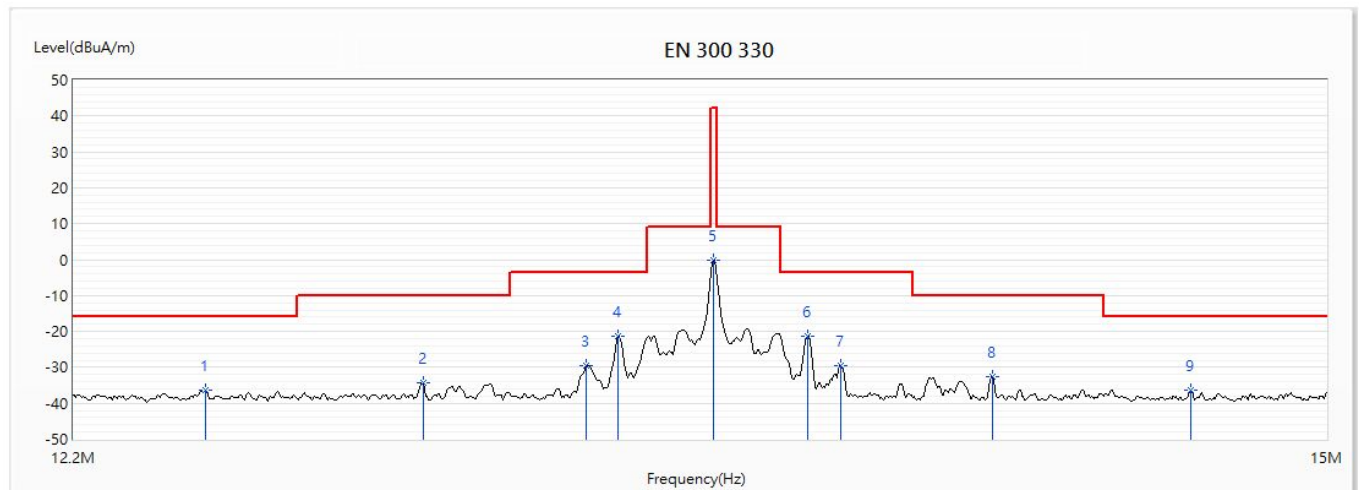
Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

3.3. Spectrum Mask

3.3.1. Test Result

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Y and EUT=Y (NFC-A + NFC-B)		

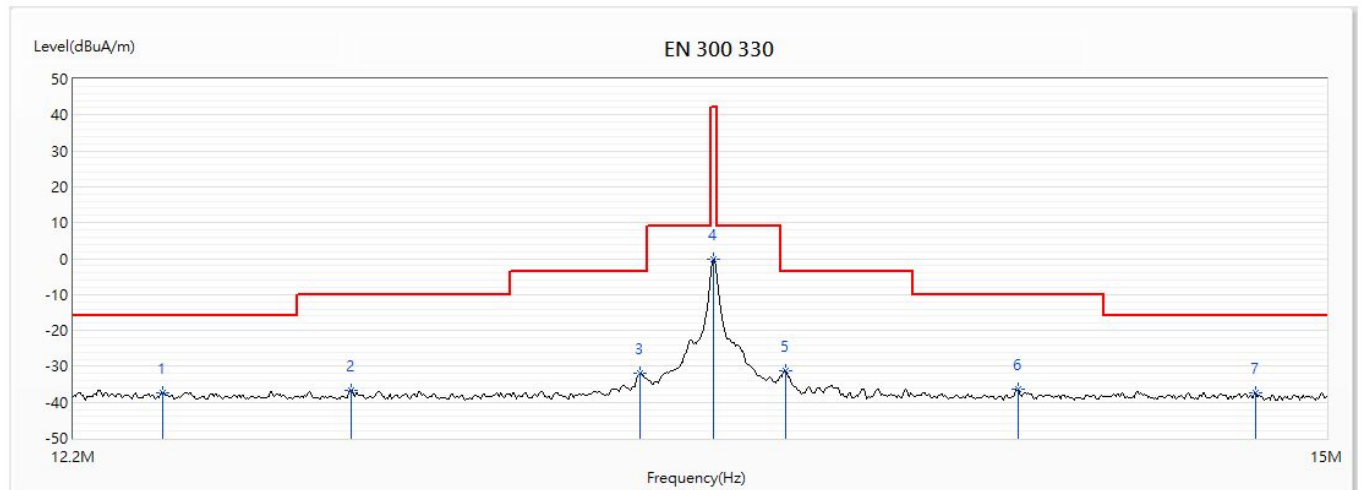


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
1	12.469	-36.28	-16.00	-20.28	14.83	-51.11	PK
2	12.925	-34.25	-10.00	-24.25	16.84	-51.09	PK
3	13.275	-29.66	-3.50	-26.16	21.42	-51.08	PK
4	13.345	-21.36	-3.50	-17.86	29.72	-51.08	PK
5	13.558	-0.18	42.00	-42.18	50.89	-51.07	PK
* 6	13.771	-21.33	-3.50	-17.83	29.73	-51.06	PK
7	13.846	-29.46	-3.50	-25.96	21.60	-51.06	PK
8	14.196	-32.70	-10.00	-22.70	18.34	-51.04	PK
9	14.667	-36.50	-16.00	-20.50	14.52	-51.02	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Y and EUT=Y(NFC-B)		

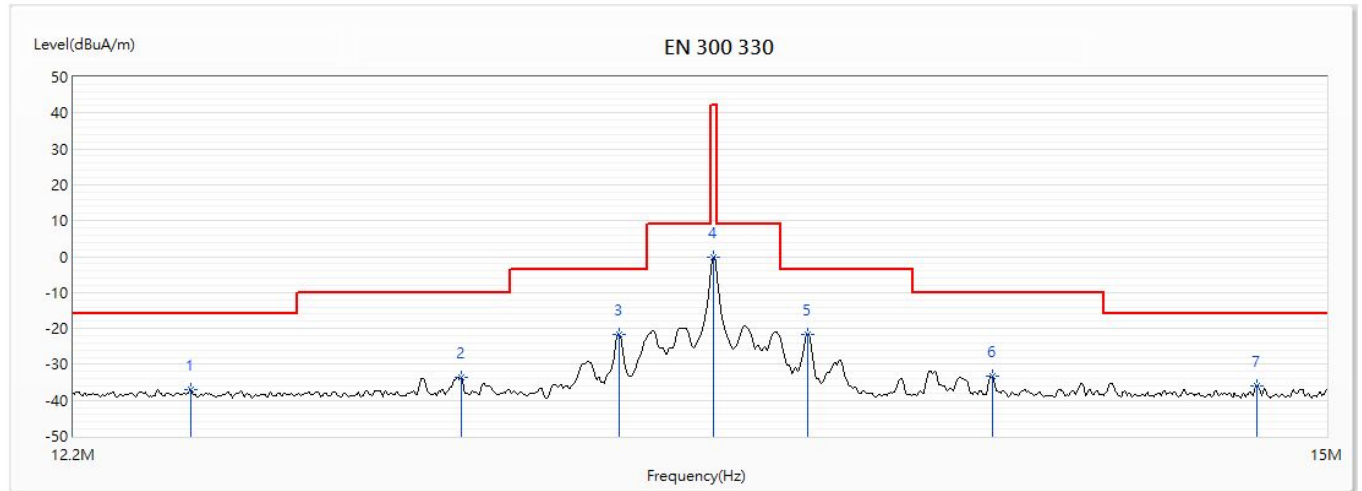


No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
* 1	12.382	-37.37	-16.00	-21.37	13.74	-51.11	PK
2	12.771	-36.56	-10.00	-26.56	14.54	-51.10	PK
3	13.396	-31.87	-3.50	-28.37	19.20	-51.07	PK
4	13.558	-0.15	42.00	-42.15	50.92	-51.07	PK
5	13.72	-31.14	-3.50	-27.64	19.92	-51.06	PK
6	14.255	-36.26	-10.00	-26.26	14.78	-51.04	PK
7	14.826	-37.41	-16.00	-21.41	13.61	-51.02	PK

Note:

1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

Model No	BCE-45B4523-001	Site	CB4-H
Test Voltage	DC 5V	Test Date	2020/8/27
Test Mode	Mode1: Transmit	Engineer	Scott
Polarity		Temperature (°C)	25.5
Test Condition	0	Humidity (%RH)	55.0
Note	NFC-13.56MHz_Ant=Y and EUT=Y(NFC-A)		



No	Frequency (MHz)	Emission Level (dBuA/m)	Limit (dBuA/m)	Margin (dB)	Reading Level (dBuA)	Correct Factor (dB/m)	Detector Type
1	12.438	-37.17	-16.00	-21.17	13.94	-51.11	PK
2	13.006	-33.53	-10.00	-23.53	17.56	-51.09	PK
3	13.348	-21.55	-3.50	-18.05	29.53	-51.08	PK
4	13.558	-0.10	42.00	-42.10	50.97	-51.07	PK
* 5	13.771	-21.52	-3.50	-18.02	29.54	-51.06	PK
6	14.196	-33.17	-10.00	-23.17	17.87	-51.04	PK
7	14.829	-36.05	-16.00	-20.05	14.97	-51.02	PK

Note:

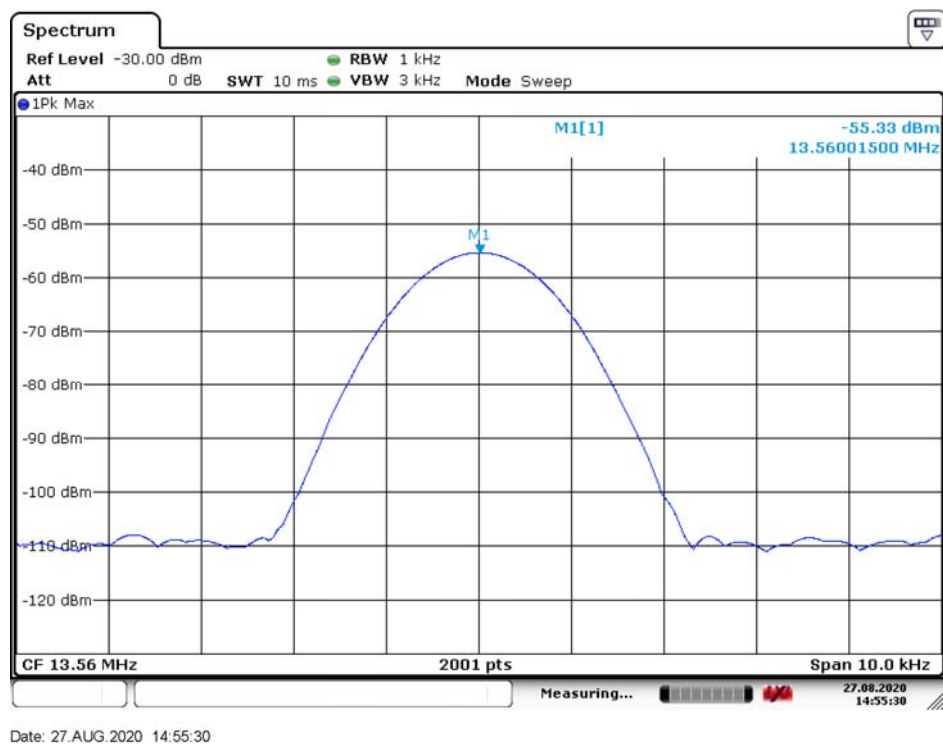
1. All reading levels is Peak value.
2. " * ", means this data is the worst value.
3. ERP = Reading Level + Correct Factor.

3.4. Transmitter Frequency stability

3.4.1. Test Result

Model No	BCE-45B4523-001		
Test Item	Transmitter Frequency stability		
Test Mode	Mode1: Transmit		
Date of Test	2020/08/27	Test Site	SR12-H
Temperature (°C)	23.0	Humidity (%RH)	62.0

13.56 MHz



Frequency (MHz)	Reading (MHz)	Limit (MHz)
13.56	13.560015	13.553~13.567

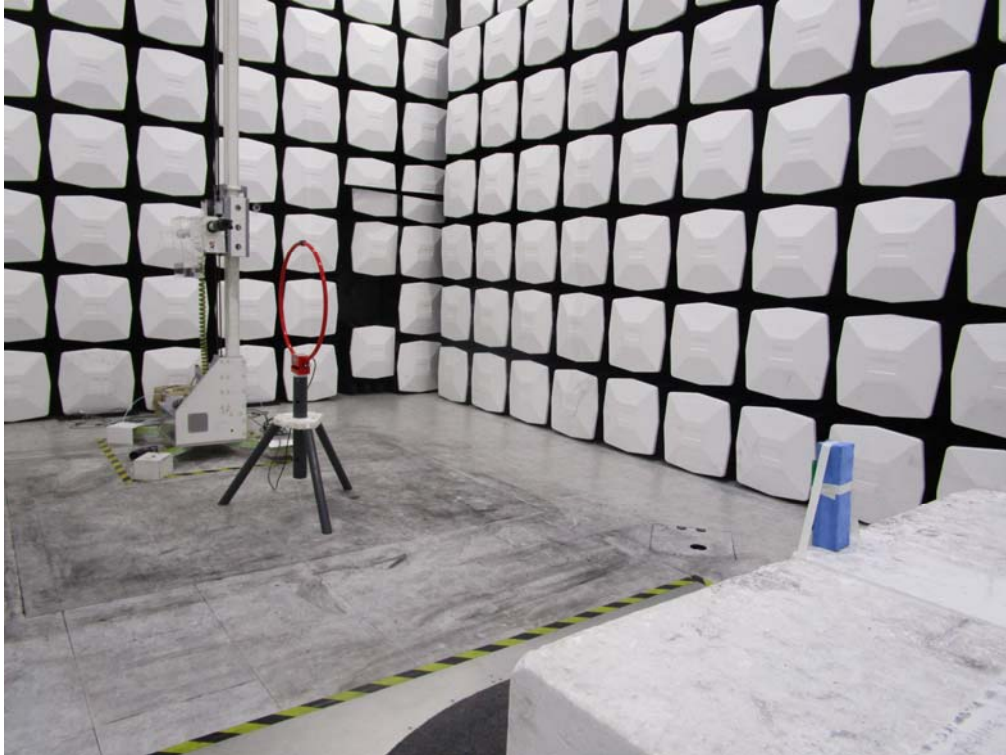
Attachment 1

➤ Test Setup Photograph

FCC

Test Mode : Mode1: Transmit

Description : Front View of Radiated Emissions Test Setup (Y_Ant Position 1)

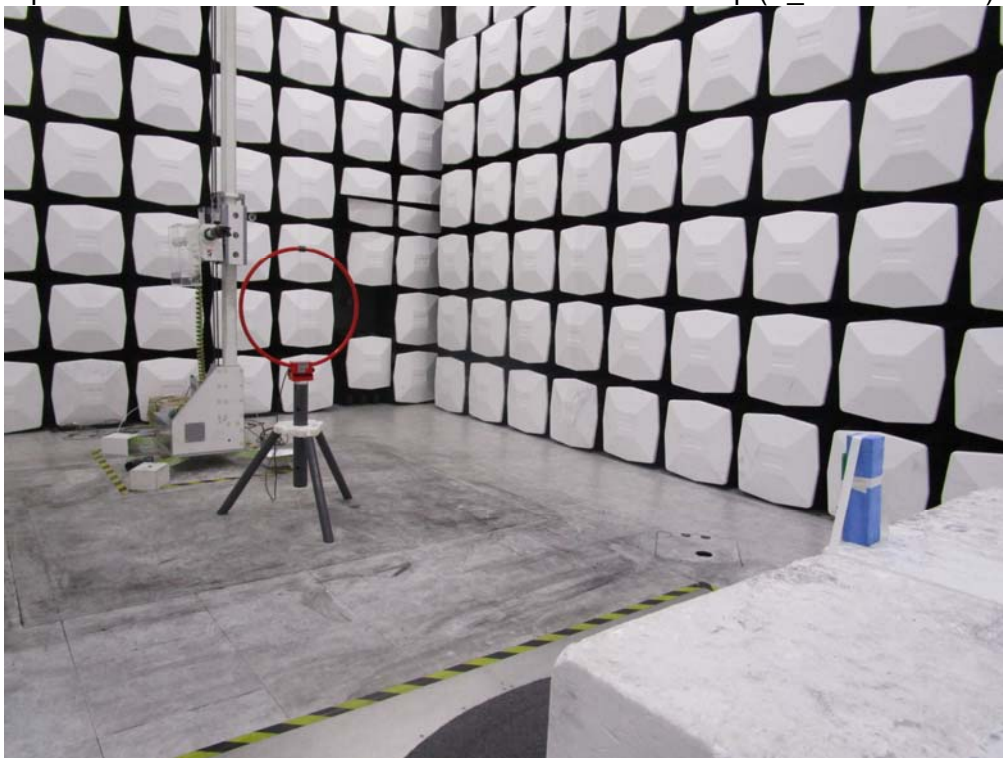


Description : Back View of Radiated Emissions Test Setup (Y_Ant Position 1)

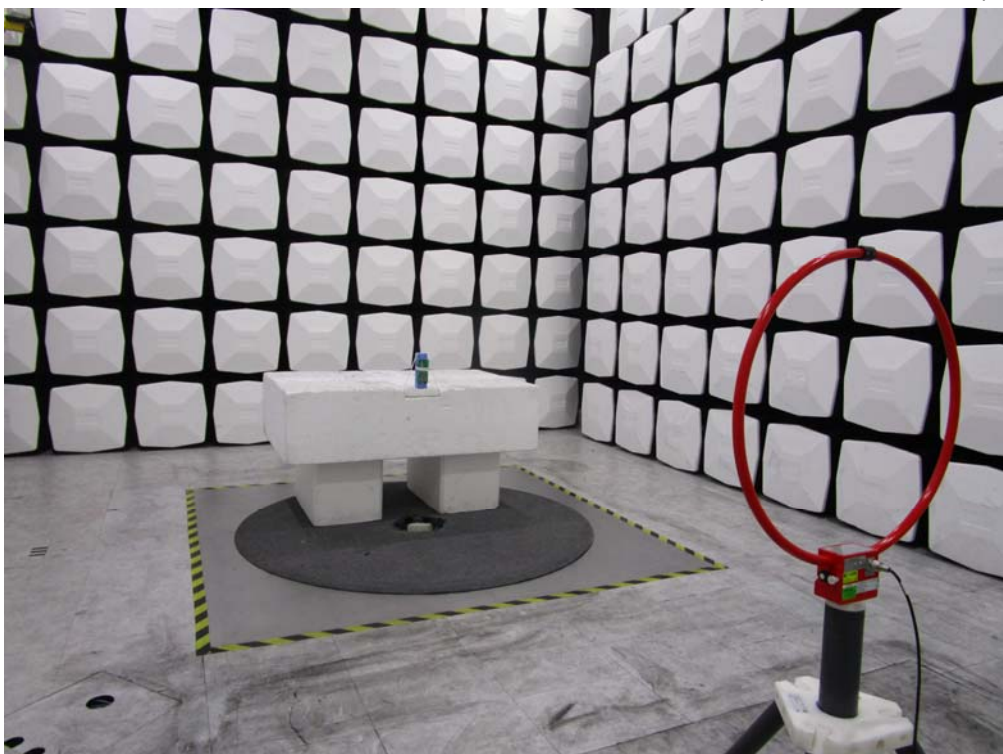


Test Mode : Mode1: Transmit

Description : Front View of Radiated Emissions Test Setup (Y_Ant Position 2)

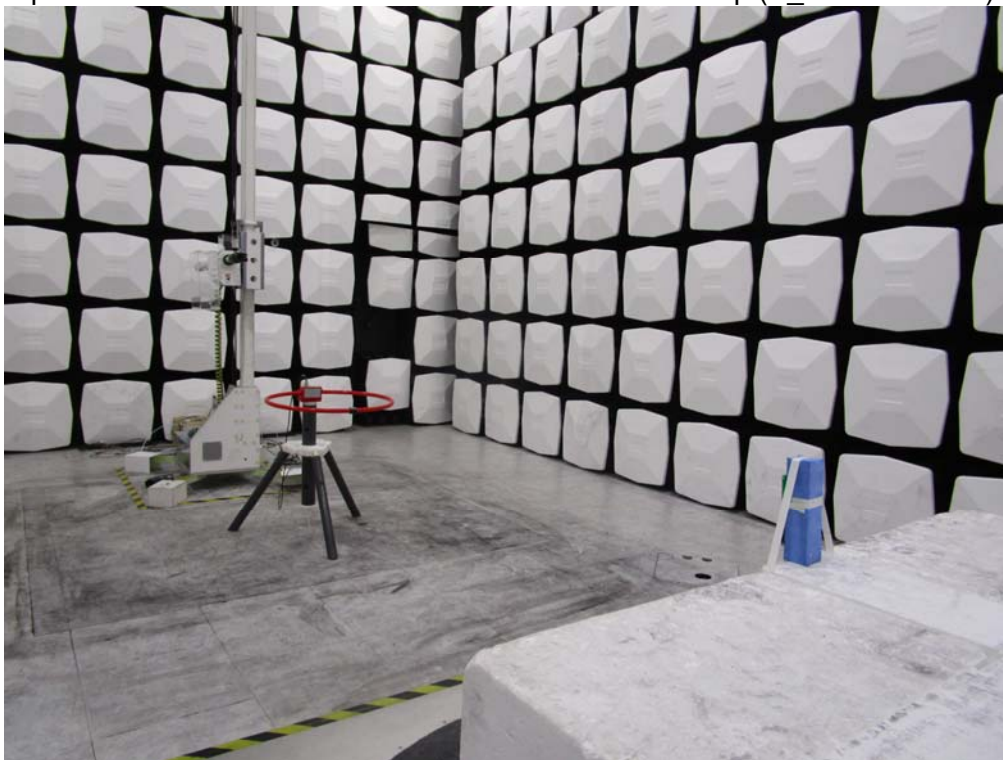


Description : Back View of Radiated Emissions Test Setup (Y_Ant Position 2)

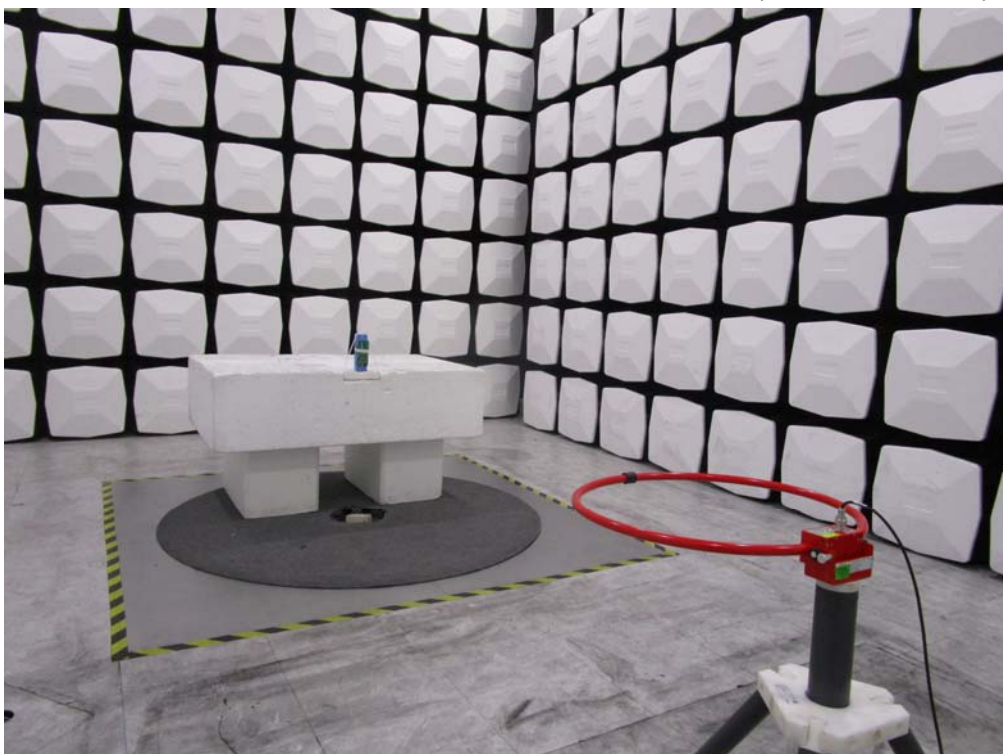


Test Mode : Mode1: Transmit

Description : Front View of Radiated Emissions Test Setup (Y_Ant Position 3)

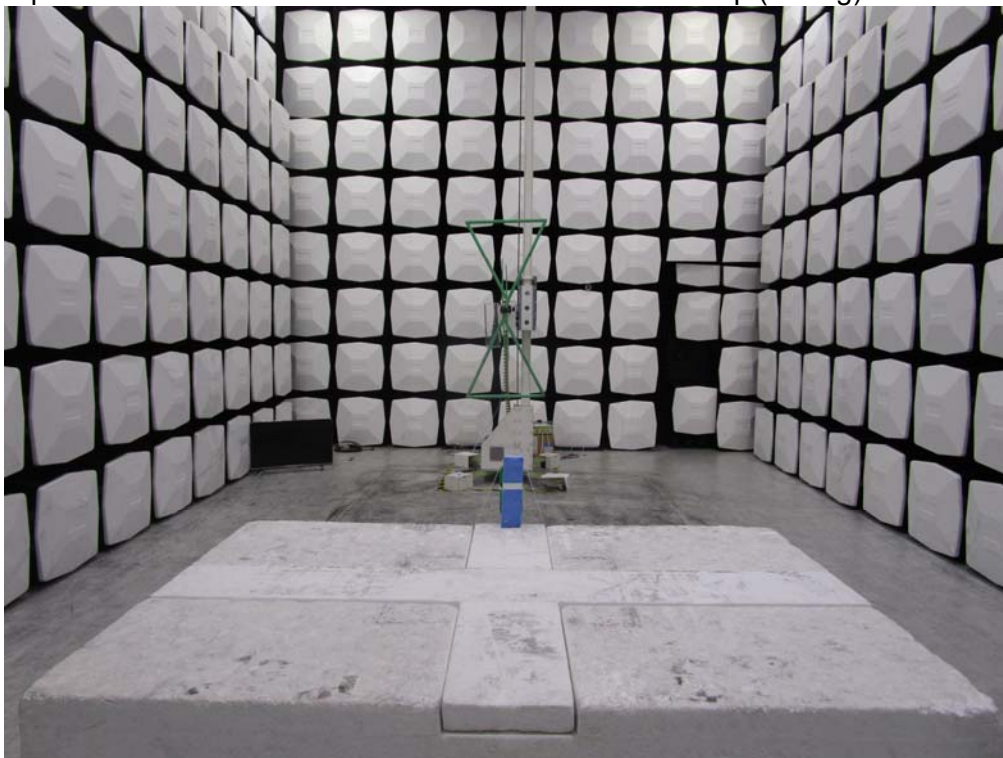


Description : Back View of Radiated Emissions Test Setup (Y_Ant Position 3)

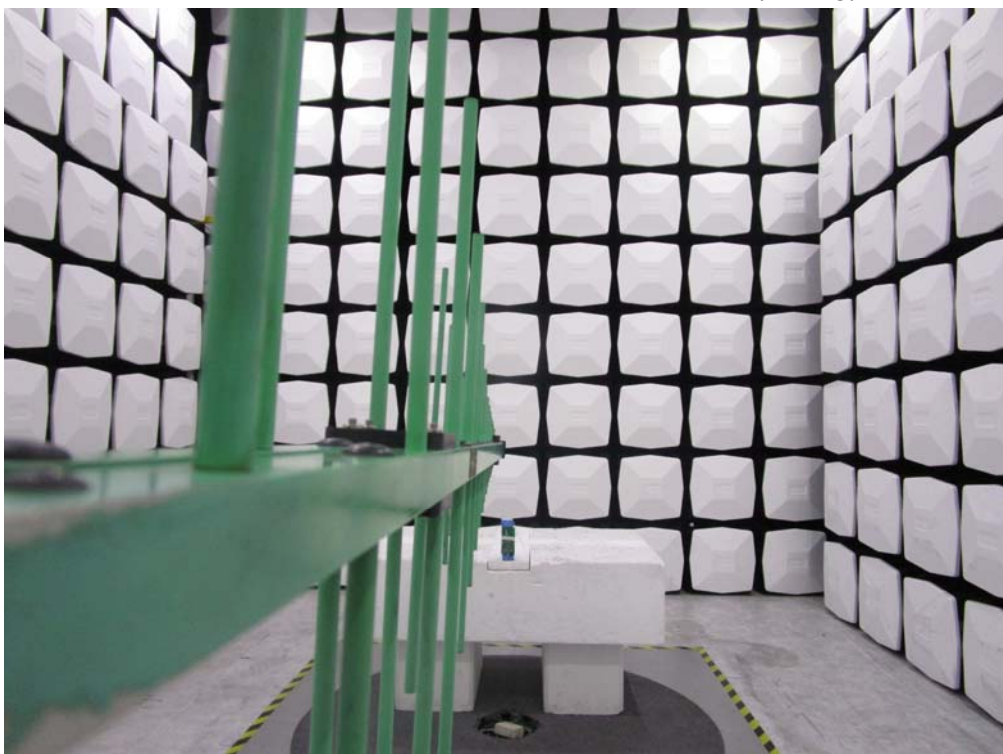


Test Mode : Mode1: Transmit

Description : Front View of Radiated Emissions Test Setup (Bi-Log)

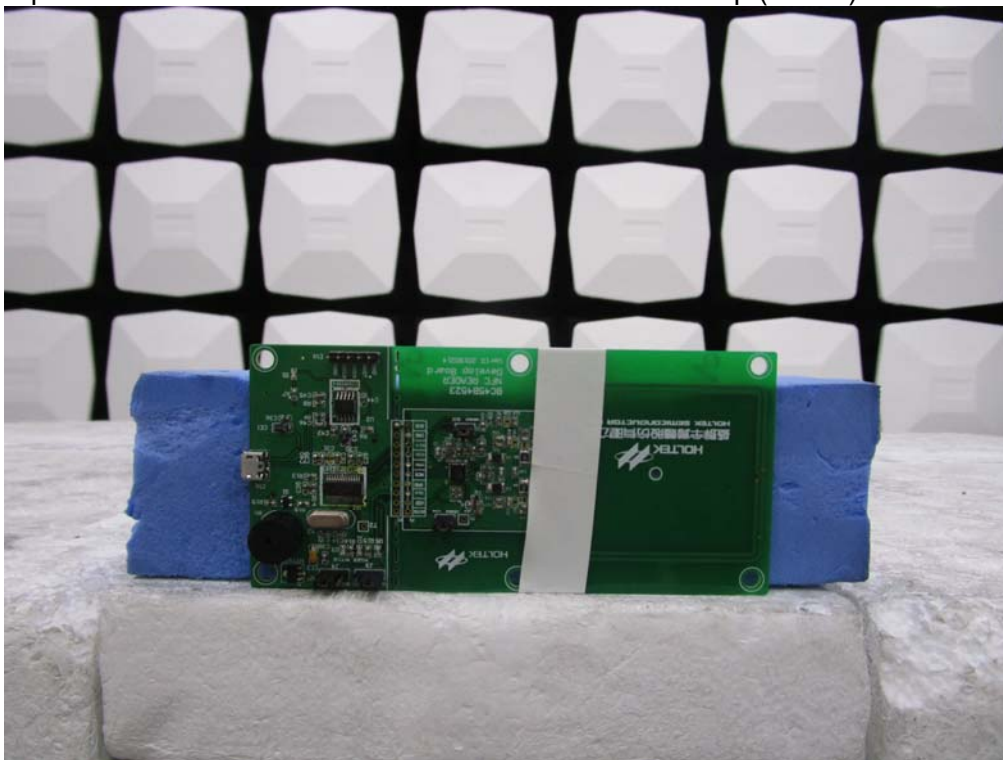


Description : Back View of Radiated Emissions Test Setup (Bi-Log)

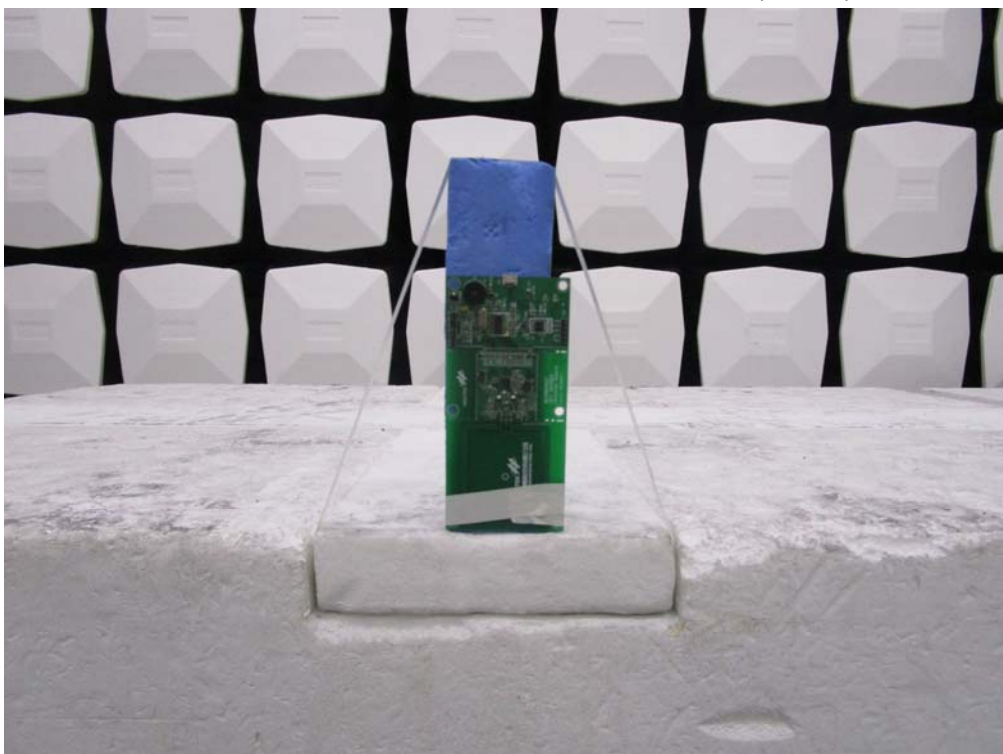


Test Mode : Mode1: Transmit

Description : Front View of Radiated Emissions Test Setup (X axis)

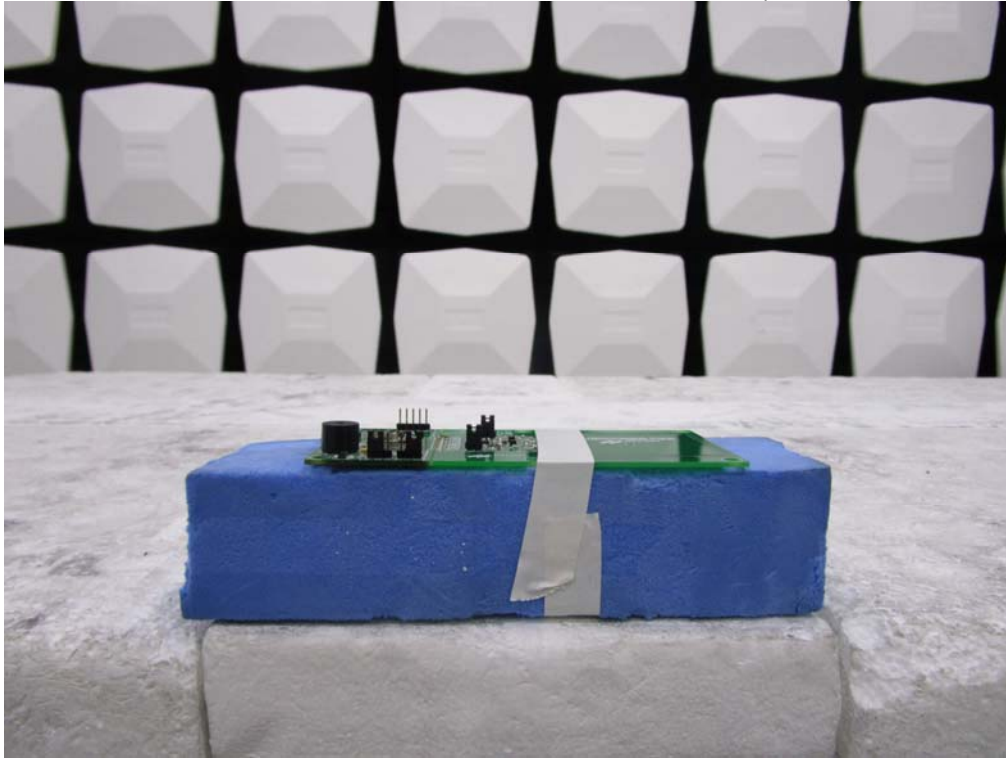


Description : Back View of Radiated Emissions Test Setup (Y axis)



Test Mode : Mode1: Transmit

Description : Front View of Radiated Emissions Test Setup (Z axis)



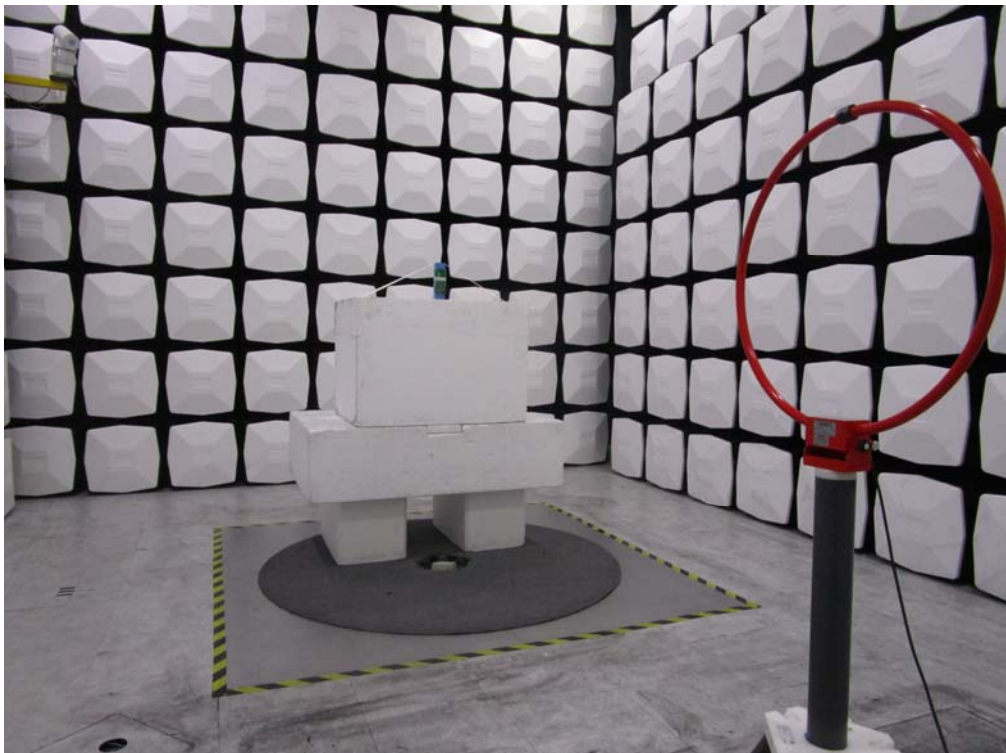
CE

Test Mode : Mode1: Transmit

Description : Front View of Radiated Emissions Test Setup (Y_Ant Position 1)



Description : Back View of Radiated Emissions Test Setup (Y_Ant Position 1)

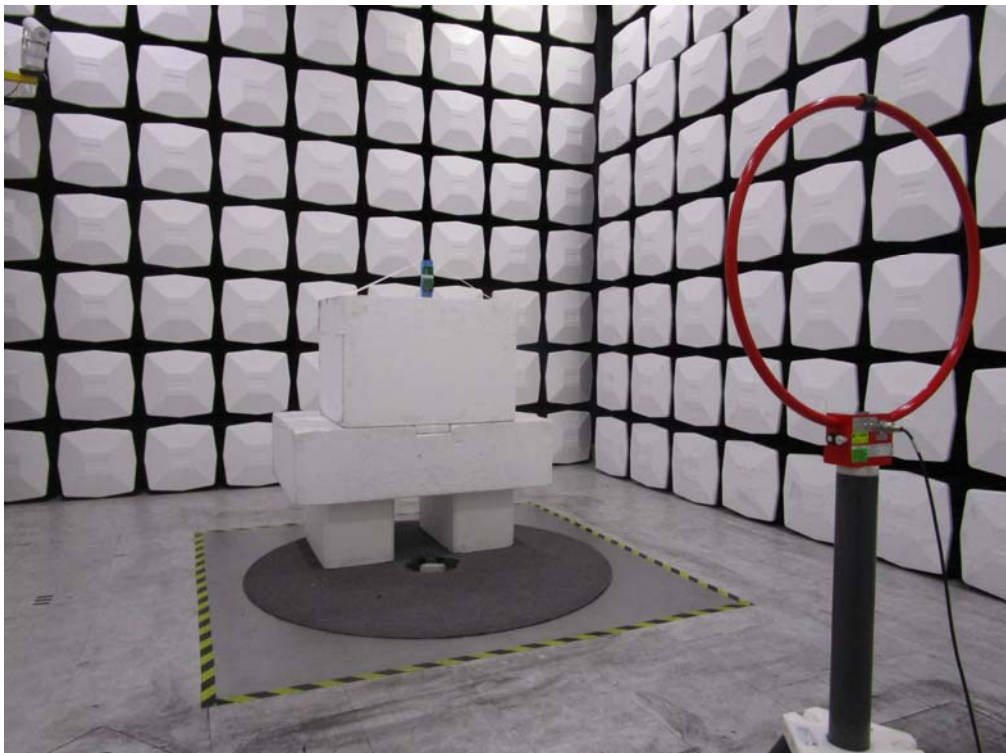


Test Mode : Mode1: Transmit

Description : Front View of Radiated Emissions Test Setup (Y_Ant Position 2)



Description : Back View of Radiated Emissions Test Setup (Y_Ant Position 2)

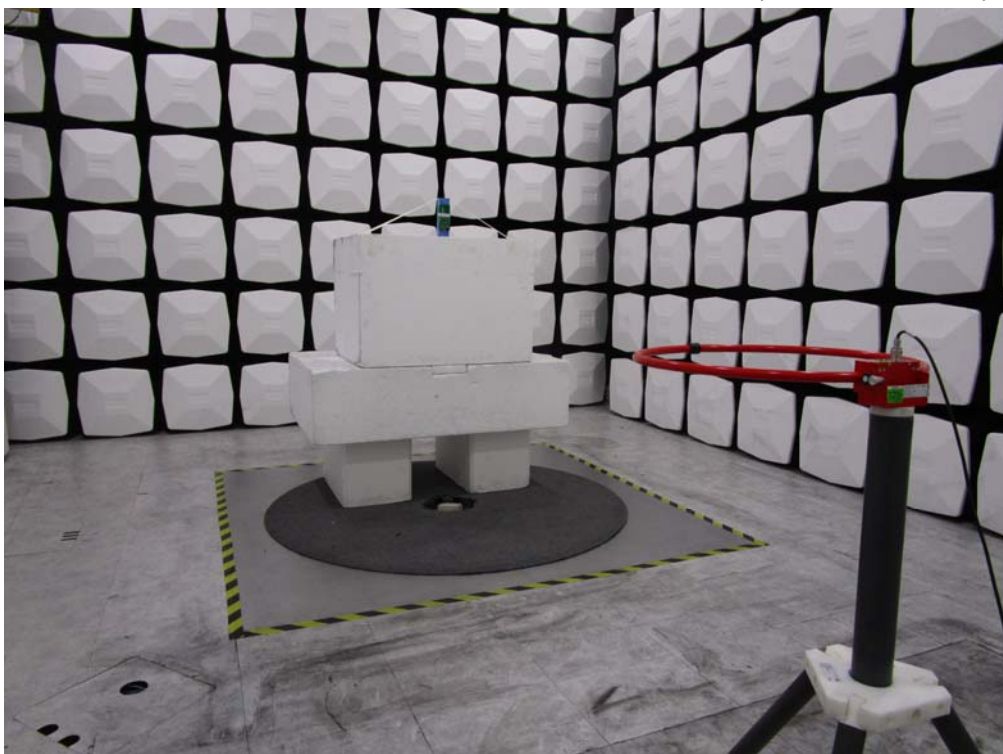


Test Mode : Mode1: Transmit

Description : Front View of Radiated Emissions Test Setup (Y_Ant Position 3)

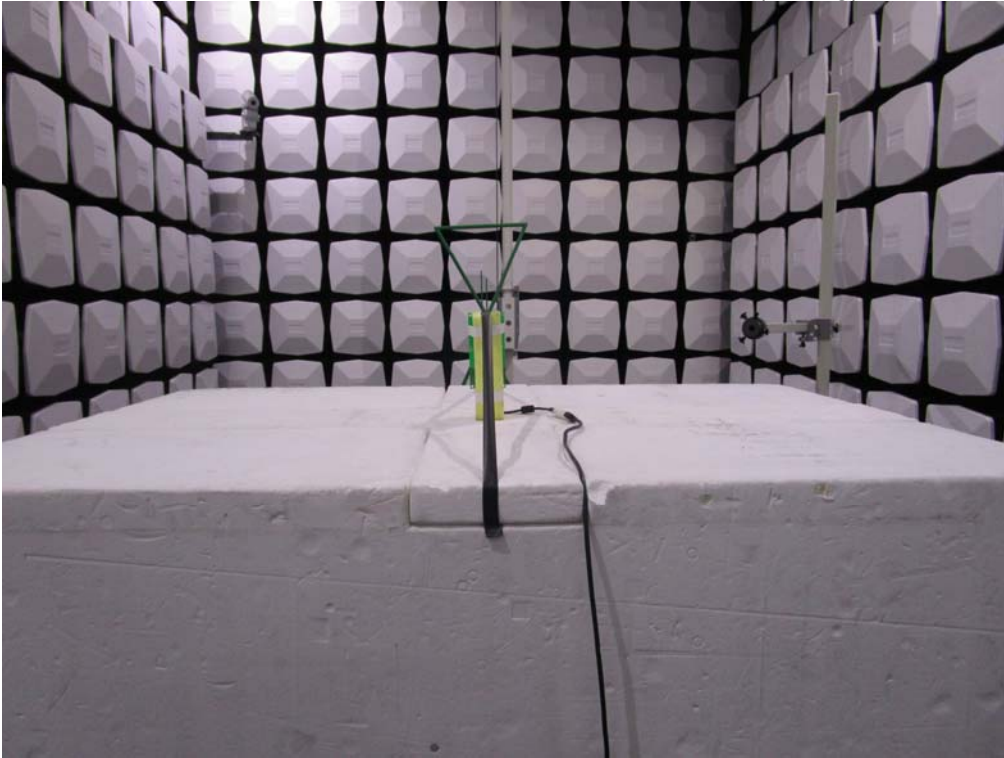


Description : Back View of Radiated Emissions Test Setup (Y_Ant Position 3)



Test Mode : Mode1: Transmit

Description : Front View of Radiated Emissions Test Setup (Bi-Log)



Description : Back View of Radiated Emissions Test Setup (Bi-Log)

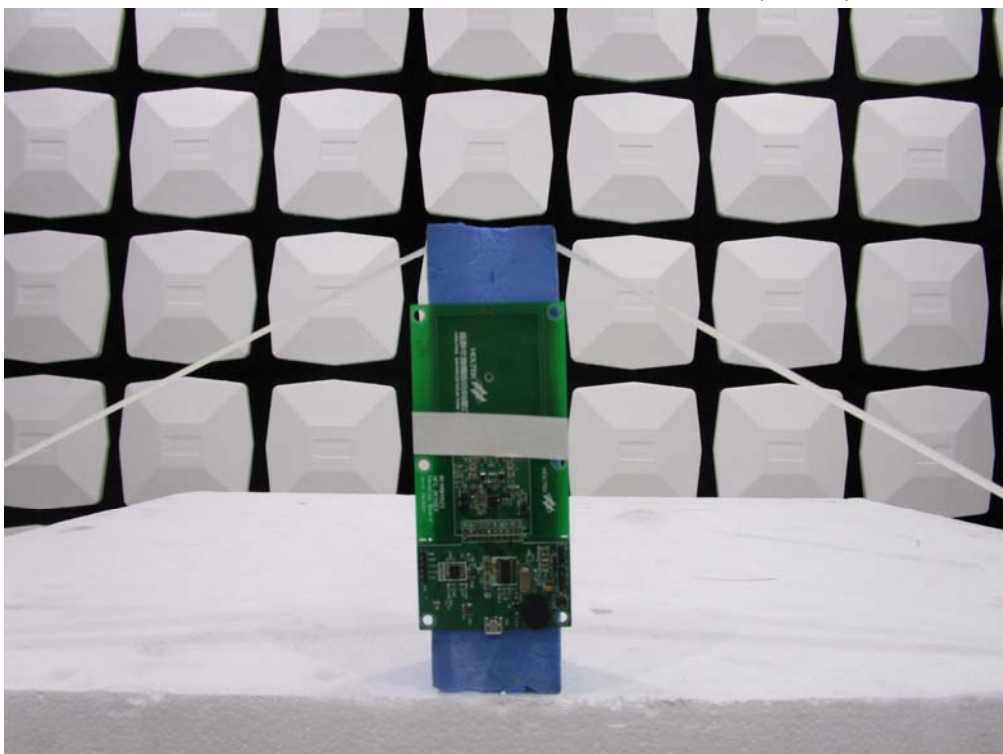


Test Mode : Mode1: Transmit

Description : Front View of Radiated Emissions Test Setup (X axis)

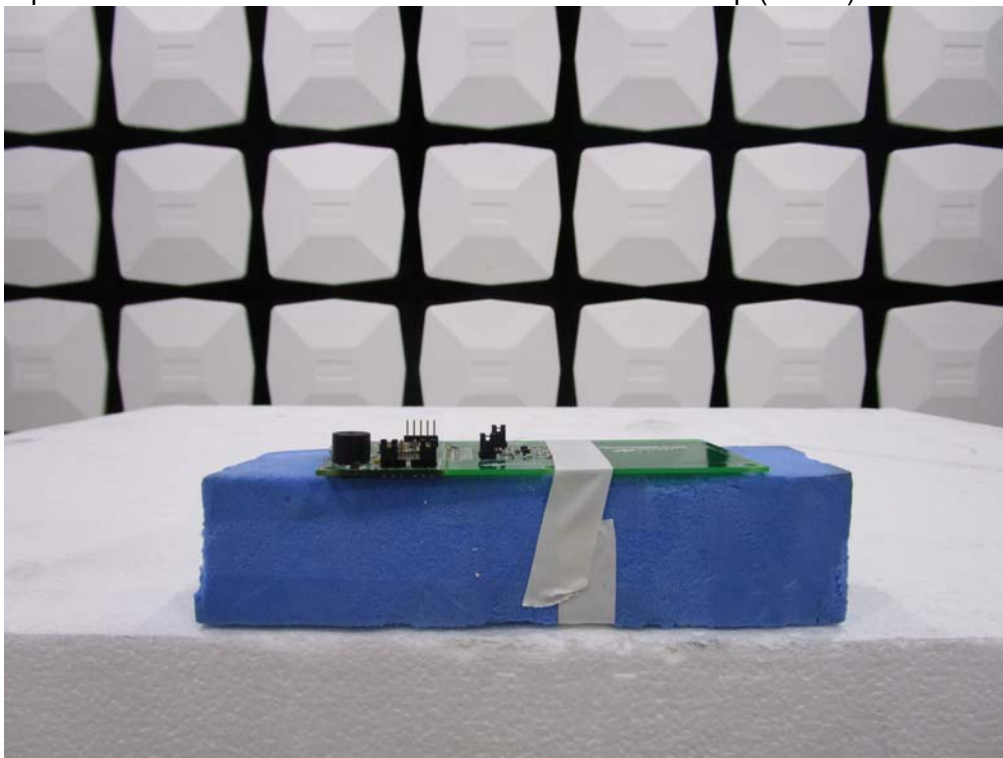


Description : Back View of Radiated Emissions Test Setup (Y axis)



Test Mode : Mode1: Transmit

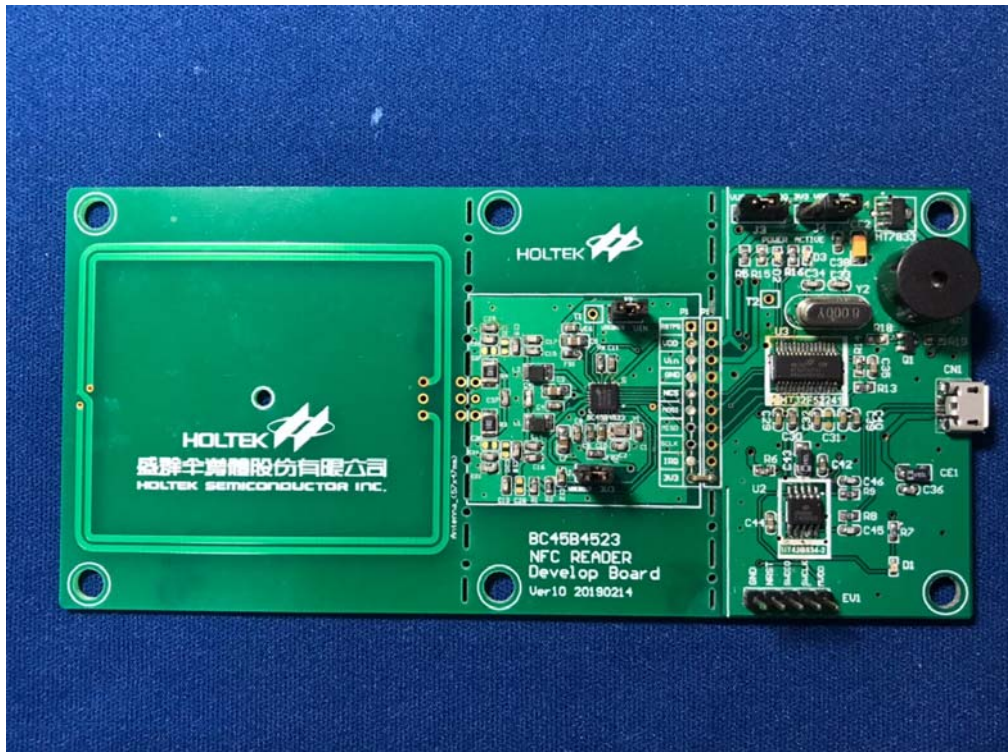
Description : Front View of Radiated Emissions Test Setup (Z axis)



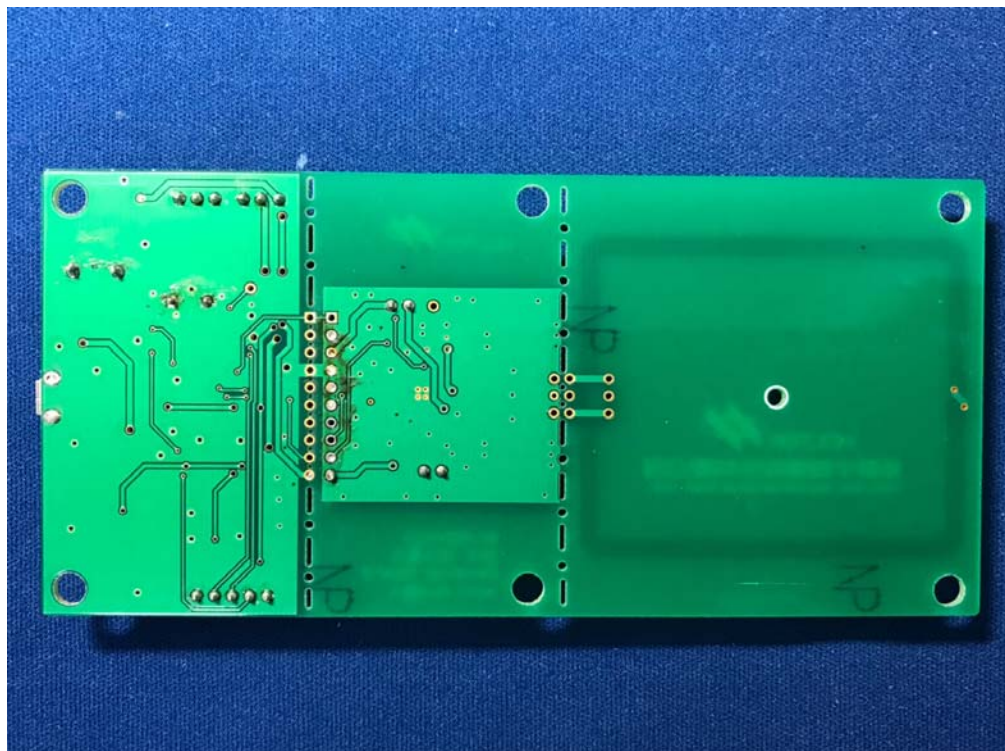
Attachment 2

➤ EUT Photograph

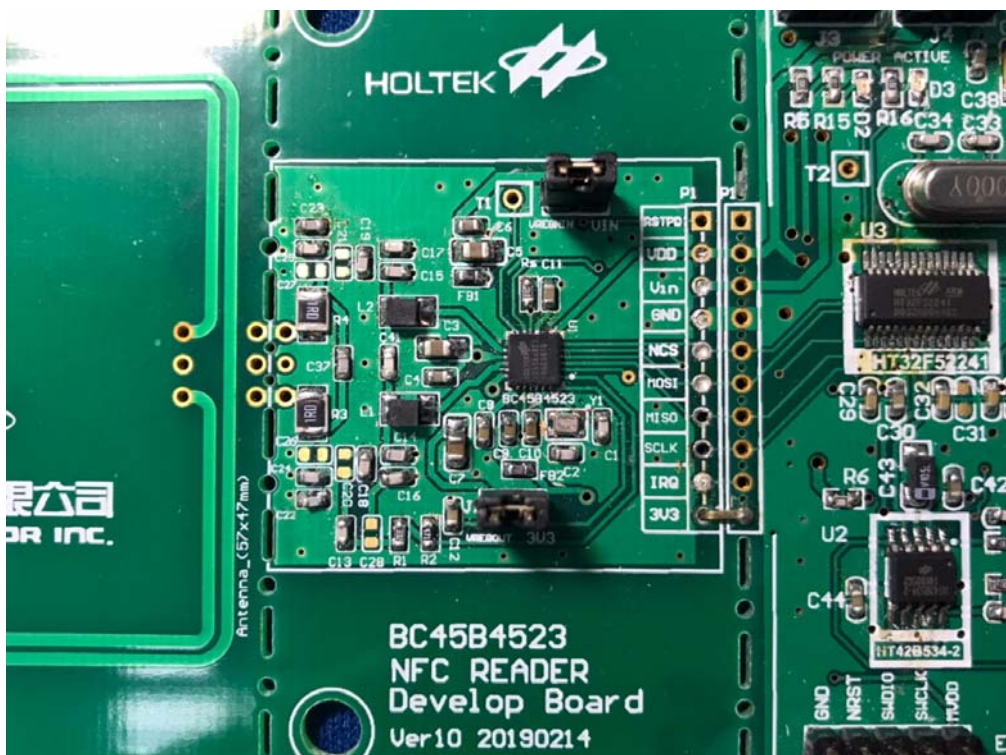
(1) EUT Photo



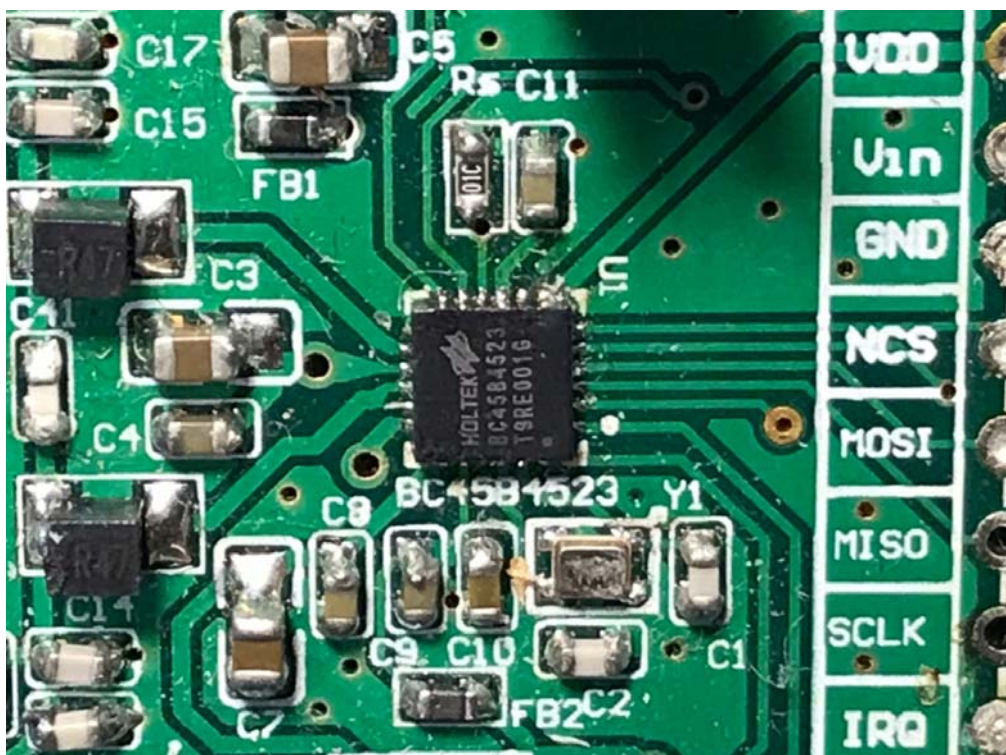
(2) EUT Photo



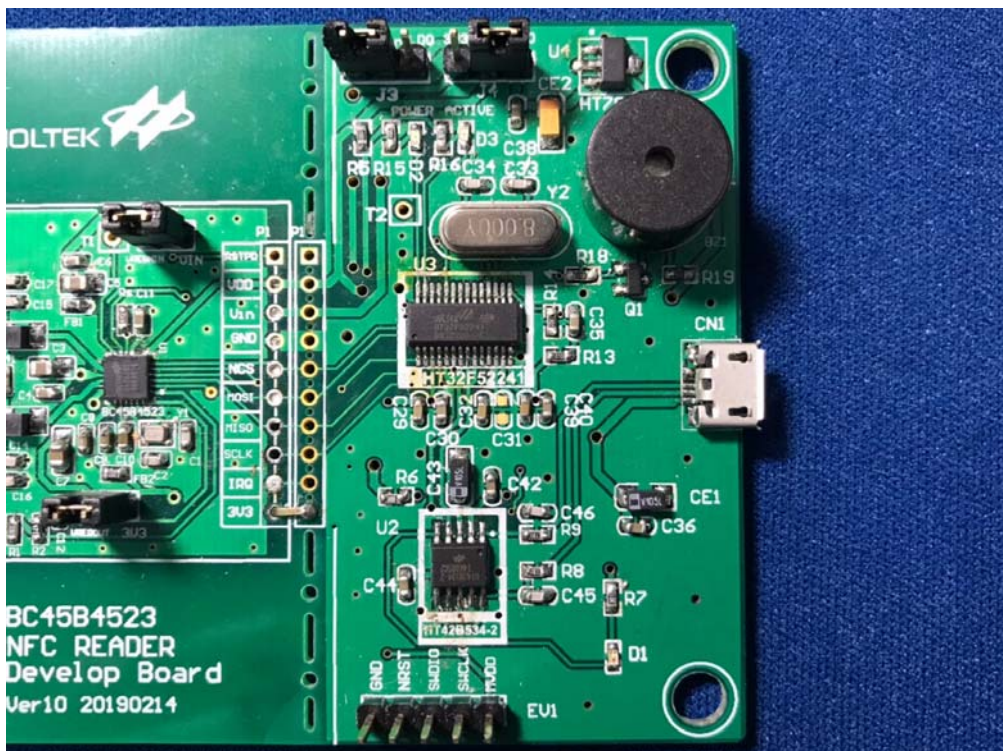
(3) EUT Photo



(4) EUT Photo



(5) EUT Photo



(6) EUT Photo



(7) EUT Photo

