



No.:
FCCSZ2025-0036-RF5

TEST REPORT

FCC ID : SS4S20W1

NAME OF SAMPLE : Enterprise Full Touch Handheld Computer

APPLICANT : BLUEBIRD INC.

CLASSIFICATION OF TEST : N/A

CVC Testing Technology (Shenzhen) Co., Ltd.



Applicant		Name: BLUEBIRD INC. Address: 3F, 115, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea	
Manufacturer		Name: BLUEBIRD INC. Address: 3F, 115, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea	
Equipment Under Test		Product Name: Enterprise Full Touch Handheld Computer Model Name: S20 Additional Model Name: N/A Brand Name: BLUEBIRD Serial NO.: N/A Sample NO.: FCCSZ2025-0036_4-1	
Date of Receipt.	Apr. 21, 2025	Date of Testing	Apr. 21, 2025 ~ Jun. 04, 2025
Test Specification		Test Result	
FCC Part 15, Subpart C, Section 15.225		PASS	
Evaluation of Test Result		<p>The equipment under test was found to comply with the requirements of the standards applied.</p> <p>Seal of CVC Issue Date: Jun. 04, 2025</p>	
Compiled by: Zhu Yulin Name Signature	Reviewed by: Mo Xianbiao Name Signature	Approved by: Dong Sanbi Name Signature	
Other Aspects: NONE.			
Abbreviations:OK, Pass= passed		Fail = failed	N/A= not applicable EUT= equipment, sample(s) under tested

This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.



TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1 SUMMARY OF TEST RESULTS	5
1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS	6
1.2 MEASUREMENT UNCERTAINTY	7
1.3 TEST LOCATION	7
2 GENERAL INFORMATION	8
2.1 GENERAL PRODUCT INFORMATION	8
2.2 DESCRIPTION OF ACCESSORIES	8
2.3 OTHER INFORMATION	9
2.4 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	9
2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	11
2.6 DESCRIPTION OF SUPPORT UNITS	11
3 TEST TYPES AND RESULTS	12
3.1 CONDUCTED EMISSION MEASUREMENT	12
3.2 RADIATED EMISSIONS MEASUREMENT	15
3.3 FREQUENCY TOLERANCE	25
3.4 20dB BANDWIDTH	27
4 PHOTOGRAPHS OF TEST SETUP	29
5 PHOTOGRAPHS OF THE EUT	30



RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCCSZ2025-0036-RF5	Original release	Jun. 04, 2025



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C Section 15.225			
FCC STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Line Conducted Emission	PASS	Meet the requirement of limit.
15.225 (a)&(b)&(c) 15.205	The field strength of Fundamental Emission	PASS	Meet the requirement of limit.
15.225 (d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit.
15.225 (e)	Frequency tolerance	PASS	Meet the requirement of limit.
15.215 (c)	20dB Bandwidth	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.



1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial Number	Cal. interval	Cal. Due
Antenna Port Conducted Test					
Signal&Spectrum Analyzer	Rohde&Schwarz	FSV 30	104408	1 year	2026/4/22
#3Shielding room	MORI	443	N/A	3 year	2026/5/16
Wideband radio communication tester	Rohde&Schwarz	CMW 500	168587	1 year	2025/7/2
Analog signal Generator (100kHz ~ 40GHz)	Rohde&Schwarz	SMB 100A	181934	1 year	2026/4/22
Vector signal Generator (9kHz ~ 6GHz)	Rohde&Schwarz	SGT 100A	111724	1 year	2026/4/22
RF control unit(BT/WiFi)	Tonscend	JS0806-2-8CH	CS0300023	1 year	2026/4/22
10db attenuator	JUNKE	SMA-10-18-N	250312743	1 year	2026/6/6
Power splitter	Anritsu	K240CPOWERDIVIDER	012334	1 year	2026/6/6
Temperature and humidity meter	/	C193561457	C193561457	1 year	2026/4/28
Radiation Spurious Test - 3M Chamber #2					
Signal&Spectrum Analyzer	Rohde&Schwarz	FSV 40	101898	1 year	2026/4/22
EMI Test Receiver	Rohde&Schwarz	ESR3	102694	1 year	2026/5/21
Antenna(30MHz~1001MHz)	SCHWARZBECK	VULB 9168	01133	1 year	2026/1/22
Horn antenna(1GHz-18GHz)	ETS	3117	227611	1 year	2026/3/28
Horn antenna(18GHz-40GHz)	QMS	QMS-00880	22051	1 year	2026/3/21
3m anechoic chamber	MORI	966	CS0300011	3 year	2026/5/18
Filter group(RSE-BT/WiFi)	Rohde&Schwarz	WiFi /BT Variant 1	100820	1 year	2026/4/22
Filter group(RSE-Cellular)	Rohde&Schwarz	Cellular Variant 1	100768	1 year	2026/4/22
Preamplifier(10kHz-1GHz)	Rohde&Schwarz	SCU-01F	100299	1 year	2026/4/22
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100799	1 year	2026/4/22
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100801	1 year	2026/4/22
Preamplifier(18GHz-40GHz)	Rohde&Schwarz	SCU-40A	101209	1 year	2026/4/22
Temperature and humidity meter	/	C193561517	C193561517	1 year	2026/4/28
Radiation Spurious Test - 3M Chamber #1					
EMI Test Receiver	Rohde&Schwarz	ESR 26	101718	1 year	2026/5/21
Loop antenna(8.3k~30MHz)	Rohde&Schwarz	HFH2-Z2E	100951	1 year	2026/6/5
Antenna(30MHz~1000MHz)	SCHWARZBECK	VULB 9168	01132	1 year	2026/2/27
Horn antenna(1GHz-18GHz)	SCHWARZBECK	BBHA9120D	02793	1 year	2026/1/20
3m anechoic chamber	MORI	966	N/A	1 year	2026/5/18
Preamplifier(10kHz-1GHz)	Rohde&Schwarz	SCU-01F	100298	1 year	2026/4/22
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100799	1 year	2026/4/22
Attenuator	/	SJ-5dB	607684	1 year	2026/2/27
#1 control room	MORI	433	/	1 year	2026/5/16
Temperature and humidity meter	/	C193561473	C193561473	1 year	2026/4/28
Conducted emission					
EMI Test Receiver	Rohde&Schwarz	ESR3	102693	1 year	2026/5/21
limiter(10 dB)	Rohde&Schwarz	VTSD 9561	01216	1 year	2026/4/22
Voltage probe	Rohde&Schwarz	CVP9222C	00028	1 year	2026/4/28
Current probe	Rohde&Schwarz	EZ-17	101442	1 year	2026/4/22
ISN network	Rohde&Schwarz	ENV 81	100401	1 year	2026/4/22
ISN network	Rohde&Schwarz	ENV 81 Cat6	101896	1 year	2026/4/22
#1Shielding room	MORI	854	N/A	3 year	2026/5/16
LISN	SCHWARZBECK	NSLK 8129	5021	1 year	2026/4/22
Temperature and humidity meter	/	C193561430	C193561430	1 year	2026/4/28



1.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

No.	Item	Measurement Uncertainty
1	Occupied Channel Bandwidth	±1.86 %
2	RF output power, conducted	±0.9 dB
3	Power Spectral Density, conducted	±0.8 dB
4	Conducted emission test	+/-2.7 dB
5	Radiated emission 9kHz-30MHz	+/-5.6 dB
	Radiated emission 30MHz-1GHz	+/-4.6 dB
	Radiated emission 1GHz-18GHz	+/-4.4 dB
	Radiated emission 18GHz-40GHz	+/-5.1 dB
6	Temperature	±0.73 °C
7	Humidity	±3.90 %
8	Supply voltages	±0.37 %
9	Time	±0.27 %

Remark: 95% Confidence Levels, k=2.

1.3 TEST LOCATION

The tests and measurements refer to this report were performed by EMC testing Lab of CVC Testing Technology (Shenzhen) Co., Ltd.

Address: No. 1301-14&16, Guanguang Road, Xinlan Community, Guanlan Subdistrict, Longhua District, Shenzhen, Guangdong, China

Post Code: 518110 Tel: 0755-23763060-8805

Fax: 0755-23763060 E-mail: sz-kf@cvc.org.cn

FCC(Test firm designation number: CN1363)

IC(Test firm CAB identifier number: CN0137)

CNAS(Test firm designation number: L16091)



2 GENERAL INFORMATION

2.1 GENERAL PRODUCT INFORMATION

PRODUCT NAME	Enterprise Full Touch Handheld Computer
BRAND NAME	BLUEBIRD
MODEL NAME	S20
ADDITIONAL MODEL NAME	N/A
POWER SUPPLY	1. DC 3.85V (1*3.85V Rechargeable Li-ion Polymer battery) 2. DC 5V From Adapter
MODULATION TYPE	ASK
OPERATING FREQUENCY	13.56MHz
NUMBER OF CHANNEL	1
ANTENNA TYPE (Remark 4/5)	Loop antenna
HARDWARE VERSION	V1.01
SOFTWARE VERSION	R1.00
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB Cabel, 100cm, unshielded

Remark:

1. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. EUT photo refer to the report (Report NO.: FCCSZ2025-0036-EUT).
4. Please refer to the antenna report.
5. Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, CVC is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

2.2 DESCRIPTION OF ACCESSORIES

Adapter	
Brand	ULLPOWER
Model No.:	ICP20-050-3000B
Input:	100-240V~50/60Hz 0.6A
Output:	5.0V == 3.0A, 15.0W
SN	82-2-2686-3235
AC Cable:	Unshielded without ferrite
DC Cable:	Unshielded without ferrite



2.3 OTHER INFORMATION

The EUT only have one channel.

CHANNEL	FREQUENCY (MHz)
1	13.56

2.4 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports

The worst case was found when positioned on X axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE	FT	PLC	BW	
A	√	√	√	√	NFC Link

Where **RE**: Radiated Emission

FT: Frequency tolerance

PLC: Power Line Conducted Emission

BW: 20dB Bandwidth

RADIATED EMISSION TEST:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	TESTED CHANNEL	TESTED FREQUENCY (MHZ)	MODULATION TYPE	AXIS
A	1	13.56	ASK	X
	1	13.56	ASK	Y
	1	13.56	ASK	Z

FREQUENCY TOLERANCE:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	TESTED CHANNEL	TESTED FREQUENCY (MHZ)	MODULATION TYPE	AXIS
A	1	13.56	ASK	Y



POWER LINE CONDUCTED EMISSION TEST:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE		TESTED CONDITION
A		NFC Link

20dB BANDWIDTH:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	TESTED CHANNEL	TESTED FREQUENCY (MHZ)	MODULATION TYPE	AXIS
A	1	13.56	ASK	Y

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE (SYSTEM)	TESTED BY
RE	26.1deg. C, 59%RH	DC 5V From USB	Liu Yuan
FT	26.1deg. C, 59%RH	DC 5V From USB	Zhu Yulin
PLC	26.1deg. C, 59%RH	DC 5V From USB	Wang Zhiming
BW	26.1deg. C, 59%RH	DC 5V From USB	Zhu Yulin



2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC PART 15, Subpart C. Section 15.225

ANSI C63.10-2020

All test items have been performed and recorded as per the above standards

2.6 DESCRIPTION OF SUPPORT UNITS

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.

Support Equipment						
NO	Description	Brand	Model No.	Serial Number	Supplied by	
1	NFC Card	N/A	N/A	N/A	Lab	
Support Cable						
NO	Description	Quantity (Number)	Length (m)	Detachable (Yes/ No)	Shielded (Yes/ No)	Cores (Number)
1	N/A	N/A	N/A	N/A	N/A	N/A

3 TEST TYPES AND RESULTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 Limit

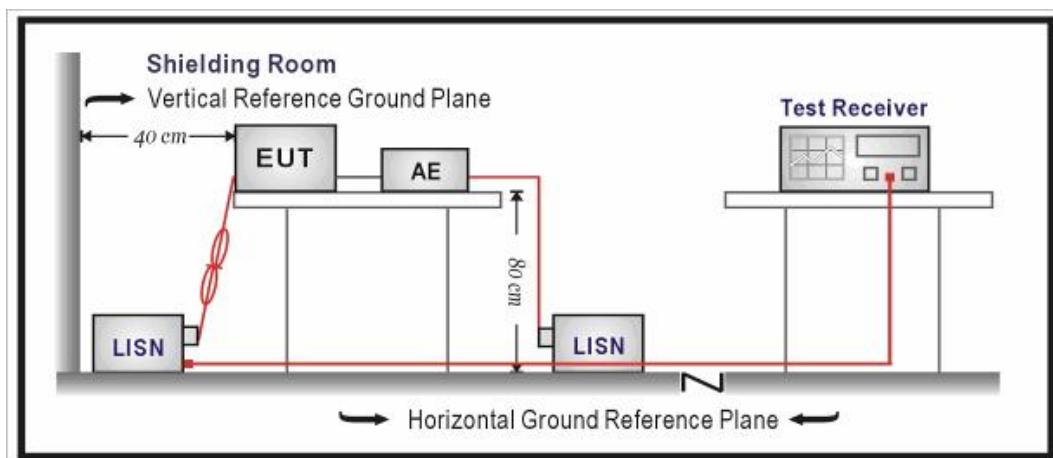
Frequency (MHz)	Conducted Limits(dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

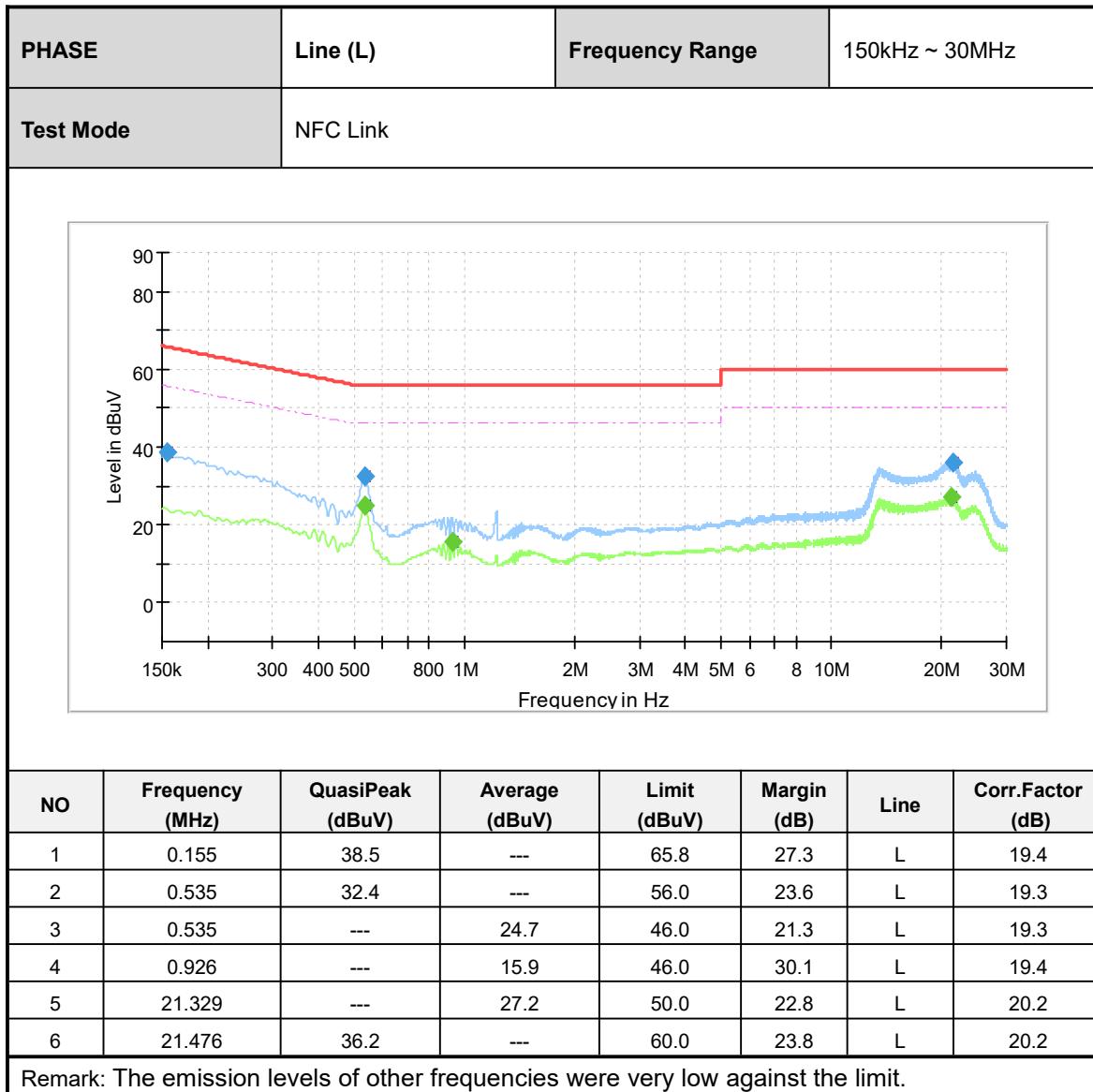
NOTE: 1. The lower limit shall apply at the transition frequencies.
NOTE: 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3.1.2 Measurement procedure

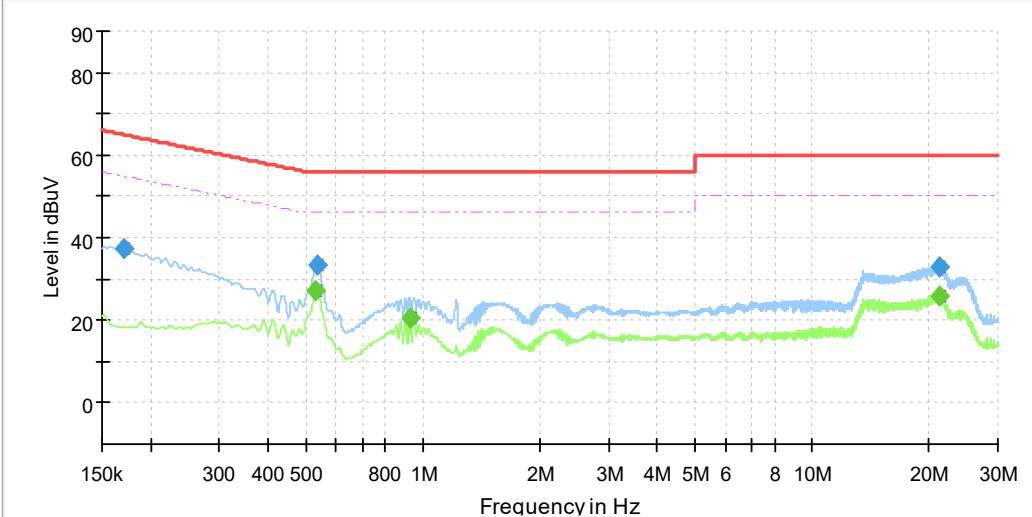
- The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the Test photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source. The equipment under test shall be placed on a support of non-metallic material, the height of which shall be 1.5m above the ground,
- The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
- Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.1.3 Test setup



3.1.4 Test results**WORST-CASE DATA**



PHASE	Line (N)	Frequency Range	150kHz ~ 30MHz																																																								
Test Mode	NFC Link																																																										
 A line graph showing spectral emission levels in dBuV on the y-axis (0 to 90) versus frequency in Hz on the x-axis (log scale from 150k to 30M). A red solid line represents the emission level, which starts at approximately 65 dBuV at 150kHz and decreases to about 60 dBuV by 500kHz, remaining relatively flat until 5MHz, then rising slightly to 62 dBuV. A blue line with diamond markers shows a sharp peak at 500kHz (37.2 dBuV) and another peak at 21.327MHz (33.0 dBuV). A green line with diamond markers shows a peak at 500kHz (27.4 dBuV) and a peak at 21.217MHz (25.8 dBuV). A purple dashed line represents the emission limit, which is flat at 56 dBuV from 150kHz to 5MHz, then rises to 58 dBuV at 5MHz and remains flat until 30MHz. A pink dashed line represents the noise floor, which is flat at 46 dBuV from 150kHz to 5MHz, then rises to 50 dBuV at 5MHz and remains flat until 30MHz.																																																											
<table border="1"><thead><tr><th>NO</th><th>Frequency (MHz)</th><th>QuasiPeak (dBuV)</th><th>Average (dBuV)</th><th>Limit (dBuV)</th><th>Margin (dB)</th><th>Line</th><th>Corr.Factor (dB)</th></tr></thead><tbody><tr><td>1</td><td>0.170</td><td>37.2</td><td>---</td><td>64.9</td><td>27.8</td><td>N</td><td>19.4</td></tr><tr><td>2</td><td>0.533</td><td>---</td><td>27.4</td><td>46.0</td><td>18.6</td><td>N</td><td>19.4</td></tr><tr><td>3</td><td>0.535</td><td>33.5</td><td>---</td><td>56.0</td><td>22.5</td><td>N</td><td>19.4</td></tr><tr><td>4</td><td>0.926</td><td>---</td><td>20.4</td><td>46.0</td><td>25.6</td><td>N</td><td>19.4</td></tr><tr><td>5</td><td>21.217</td><td>---</td><td>25.8</td><td>50.0</td><td>24.2</td><td>N</td><td>20.3</td></tr><tr><td>6</td><td>21.327</td><td>33.0</td><td>---</td><td>60.0</td><td>27.0</td><td>N</td><td>20.3</td></tr></tbody></table>				NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)	1	0.170	37.2	---	64.9	27.8	N	19.4	2	0.533	---	27.4	46.0	18.6	N	19.4	3	0.535	33.5	---	56.0	22.5	N	19.4	4	0.926	---	20.4	46.0	25.6	N	19.4	5	21.217	---	25.8	50.0	24.2	N	20.3	6	21.327	33.0	---	60.0	27.0	N	20.3
NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)																																																				
1	0.170	37.2	---	64.9	27.8	N	19.4																																																				
2	0.533	---	27.4	46.0	18.6	N	19.4																																																				
3	0.535	33.5	---	56.0	22.5	N	19.4																																																				
4	0.926	---	20.4	46.0	25.6	N	19.4																																																				
5	21.217	---	25.8	50.0	24.2	N	20.3																																																				
6	21.327	33.0	---	60.0	27.0	N	20.3																																																				

Remark: The emission levels of other frequencies were very low against the limit.



3.2 RADIATED EMISSIONS MEASUREMENT

3.2.1 Limits

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

FREQUENCIES (MHz)	FIELD STRENGTH (Microvolts/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

NOTE: 1. The lower limit shall apply at the transition frequencies.

NOTE: 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

3.2.2 Measurement procedure

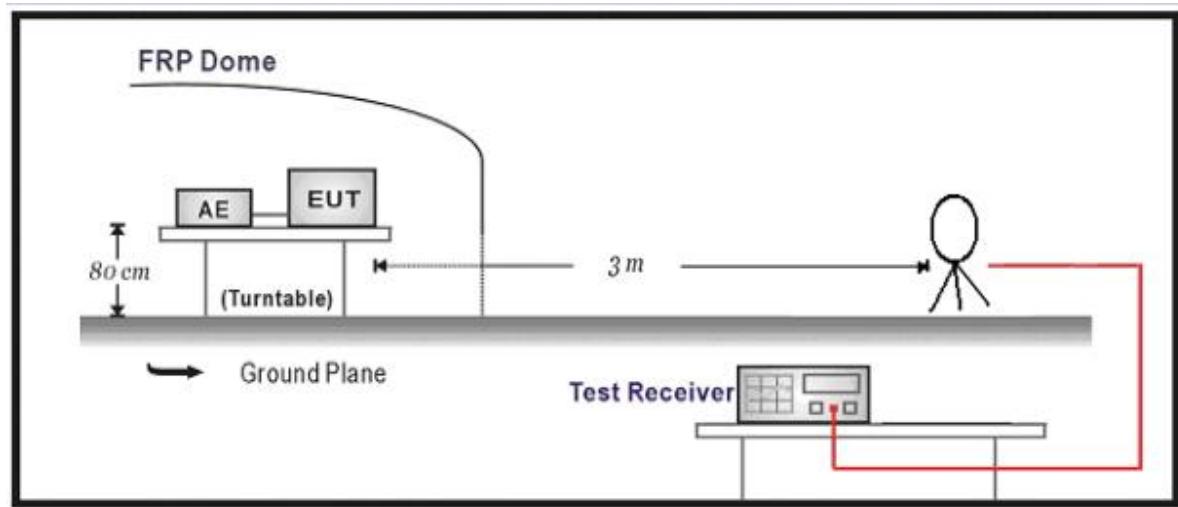
- a. The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. For below 1GHz was used bilog antenna, and above 1GHz was used horn antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
- g. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

NOTE:

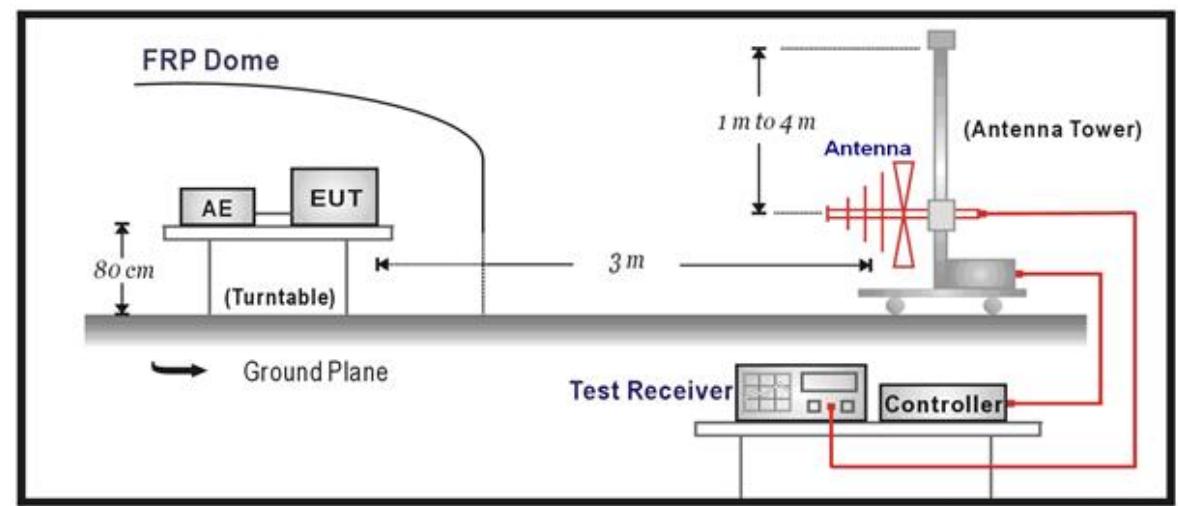
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

3.2.3 Test setup

Below 30MHz Test Setup:



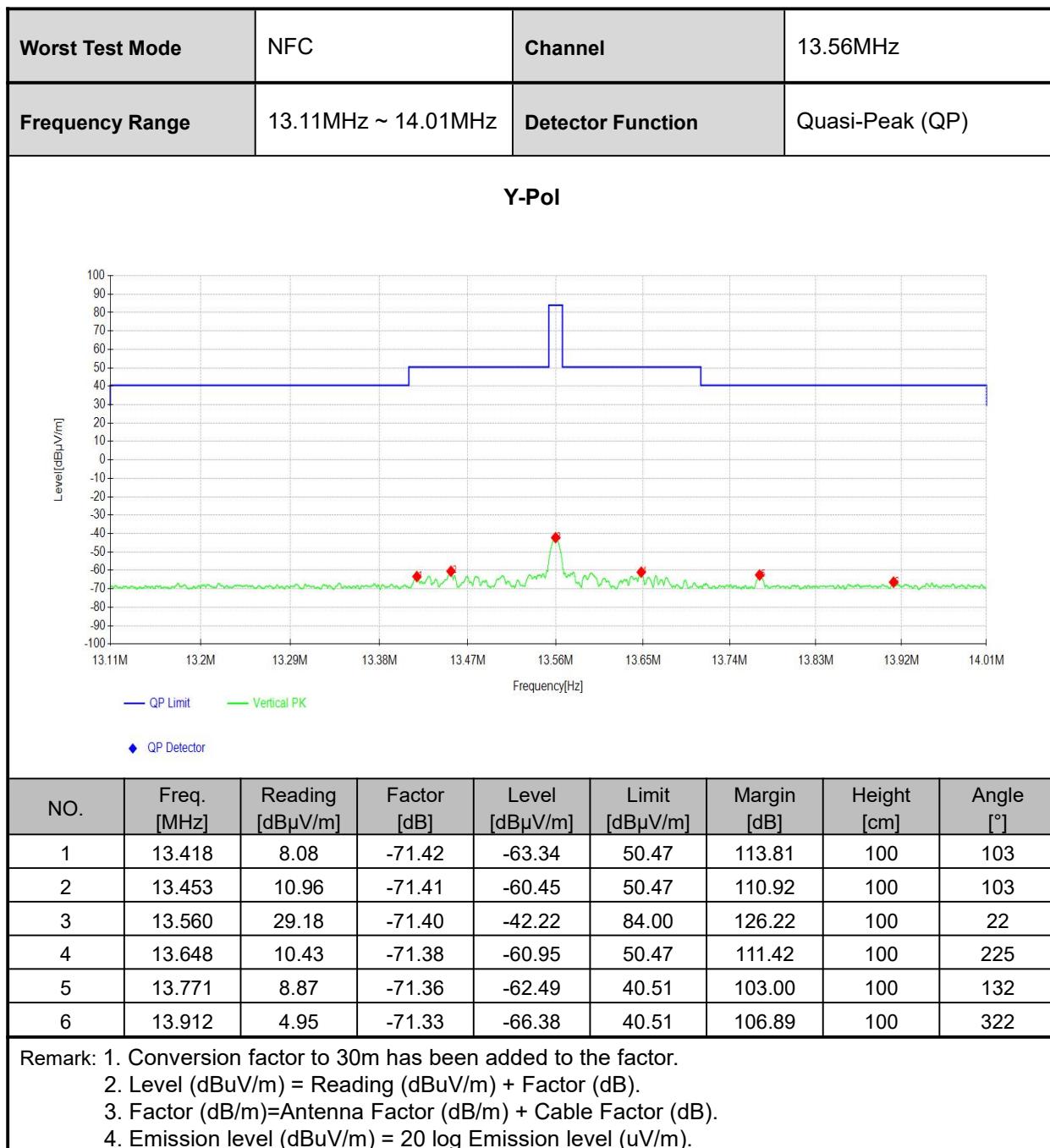
Below 1GHz Test Setup:



3.2.4 Test results

Result of The field strength of Fundamental Emission

Worst Test Mode	NFC	Channel	13.56MHz					
Frequency Range	13.11MHz ~ 14.01MHz	Detector Function	Quasi-Peak (QP)					
X-Pol								
<p>The plot shows the field strength in dBμV/m versus Frequency in Hz. The QP Limit is a blue step function. The Vertical PK is a green line with a sharp peak at 13.56M. The QP Detector data is shown as red diamonds. The x-axis ranges from 13.11M to 14.01M, and the y-axis ranges from -100 to 100.</p>								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]
1	13.202	4.50	-71.46	-66.96	40.51	107.47	100	16
2	13.360	3.76	-71.43	-67.67	40.51	108.18	100	312
3	13.462	9.00	-71.41	-62.41	50.47	112.88	100	225
4	13.560	31.54	-71.40	-39.86	84.00	123.86	100	132
5	13.700	7.37	-71.37	-64.00	50.47	114.47	100	126
6	13.838	4.53	-71.35	-66.82	40.51	107.33	100	62
Remark: 1. Conversion factor to 30m has been added to the factor. 2. Level (dB μ V/m) = Reading (dB μ V/m) + Factor (dB). 3. Factor (dB/m)=Antenna Factor (dB/m) + Cable Factor (dB). 4. Emission level (dB μ V/m) = 20 log Emission level (uV/m).								

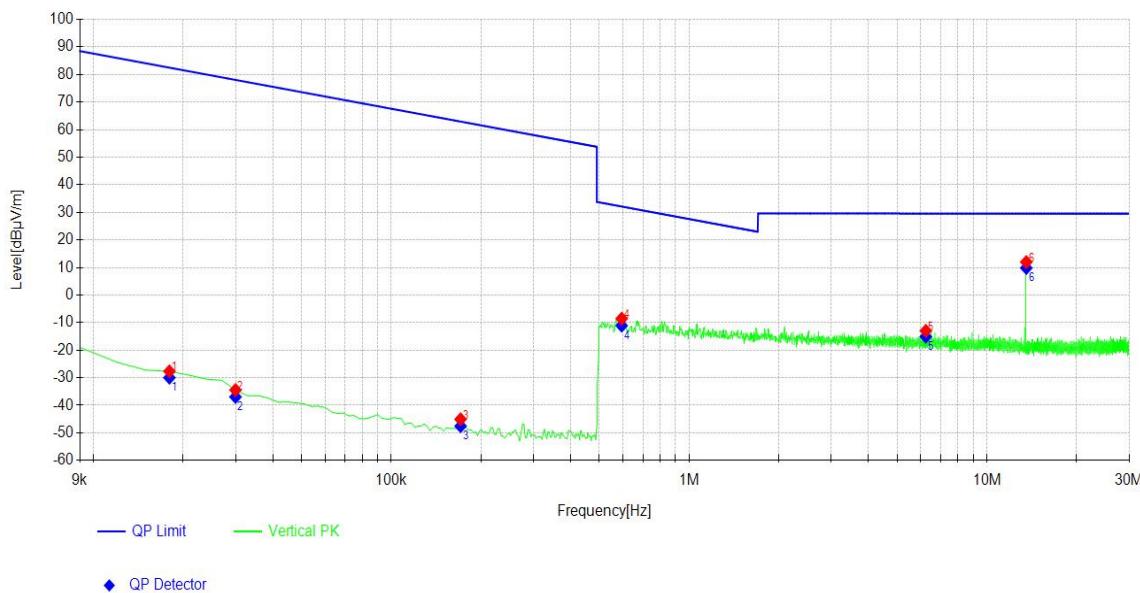




Worst Test Mode	NFC	Channel	13.56MHz					
Frequency Range	13.11MHz ~ 14.01MHz	Detector Function	Quasi-Peak (QP)					
Z-Pol								
								
NO.	Freq. [MHz]	Reading [dB μ V/m]	Factor [dB]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]
1	13.294	13.74	-71.44	-57.70	40.51	98.21	100	234
2	13.489	18.56	-71.41	-52.85	50.47	103.32	100	211
3	13.560	27.97	-71.40	-43.43	84.00	127.43	100	358
4	13.674	16.68	-71.38	-54.70	50.47	105.17	100	234
5	13.802	15.06	-71.36	-56.30	40.51	96.81	100	199
6	13.884	15.02	-71.35	-56.33	40.51	96.84	100	199
Remark: 1. Conversion factor to 30m has been added to the factor. 2. Level (dB μ V/m) = Reading (dB μ V/m) + Factor (dB). 3. Factor (dB/m)=Antenna Factor (dB/m) + Cable Factor (dB). 4. Emission level (dB μ V/m) = 20 log Emission level (uV/m).								

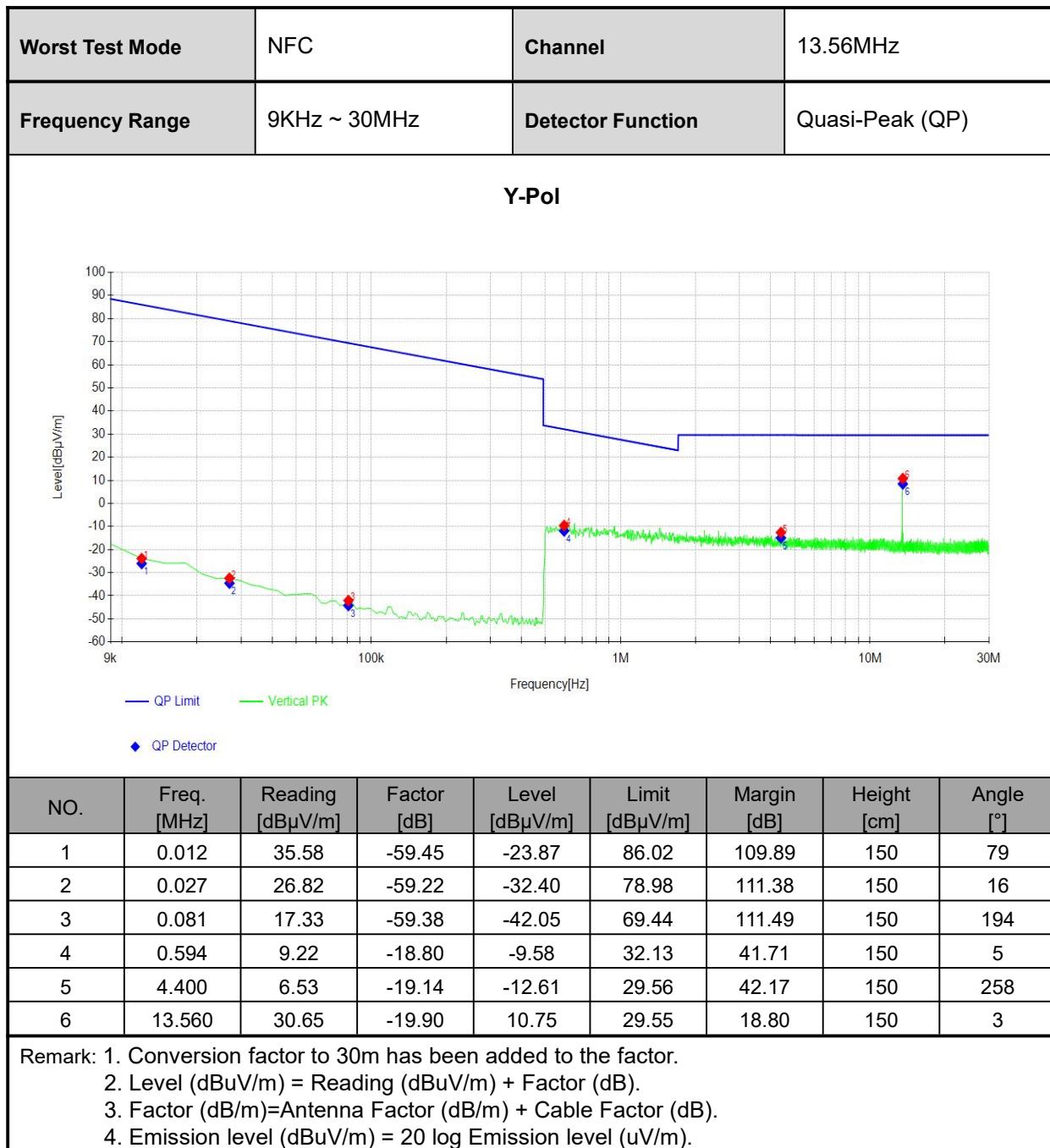
Result of Radiated Emissions(9kHz~30MHz)

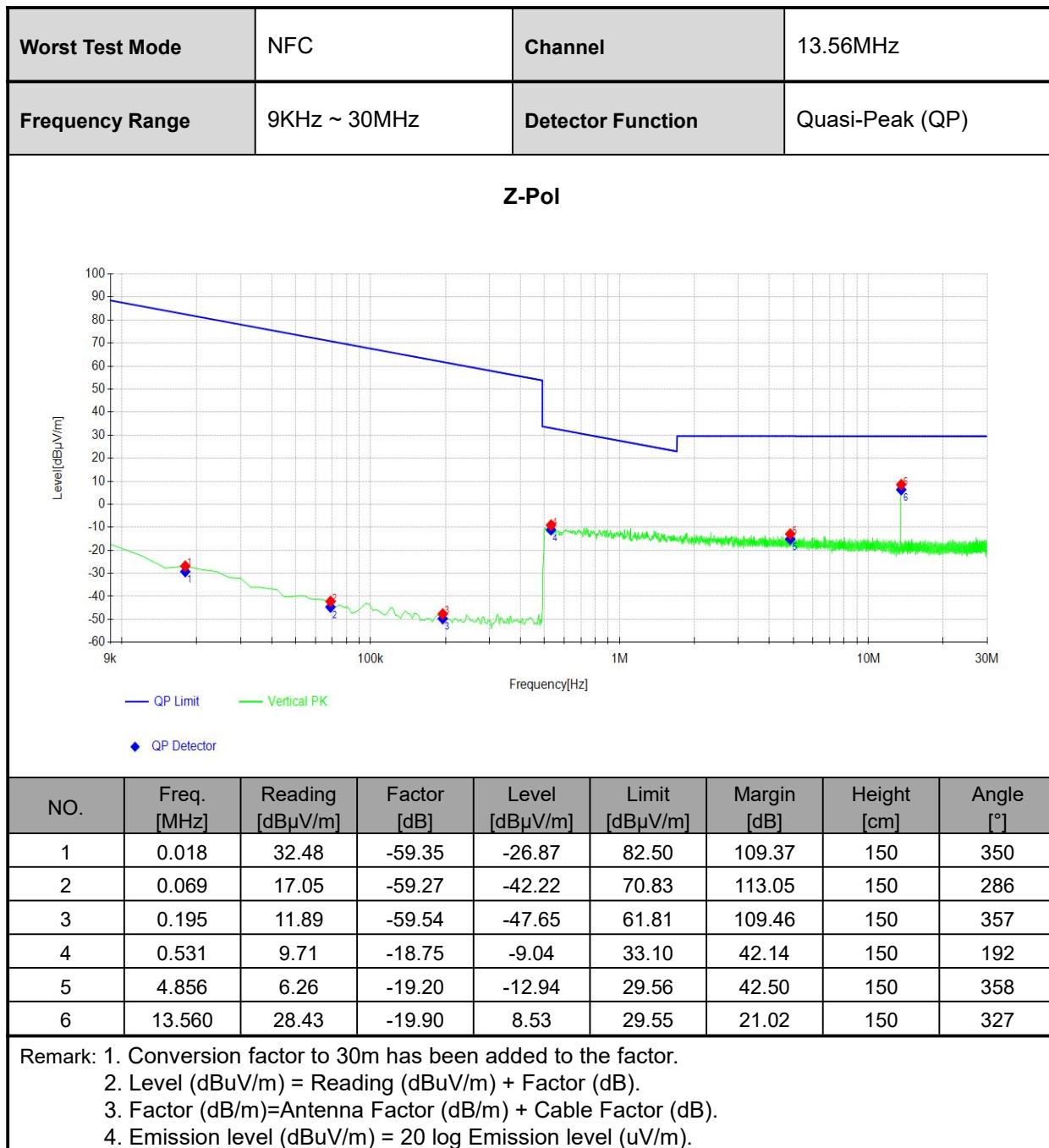
Worst Test Mode	NFC	Channel	13.56MHz
Frequency Range	9KHz ~ 30MHz	Detector Function	Quasi-Peak (QP)

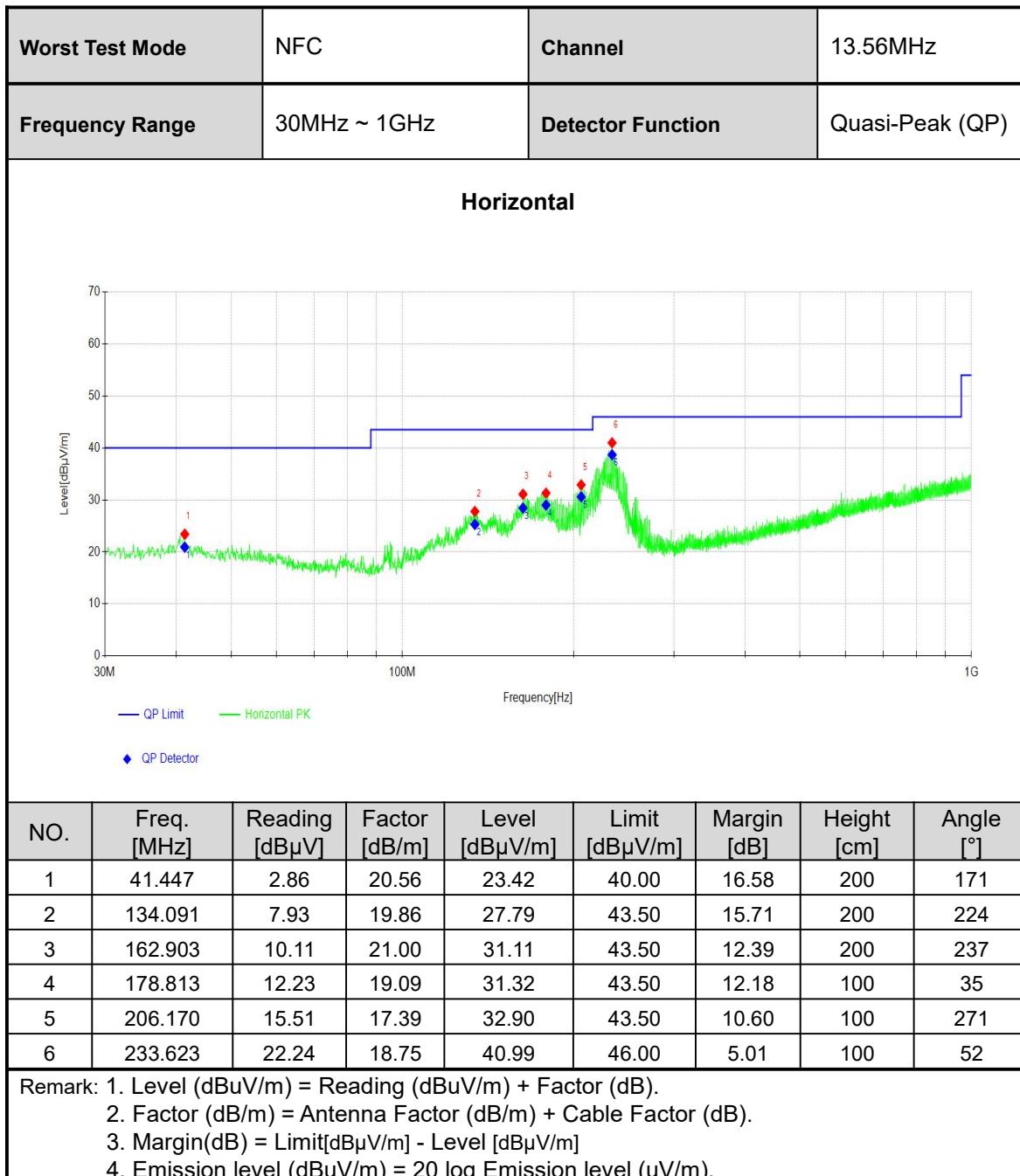
X-Pol


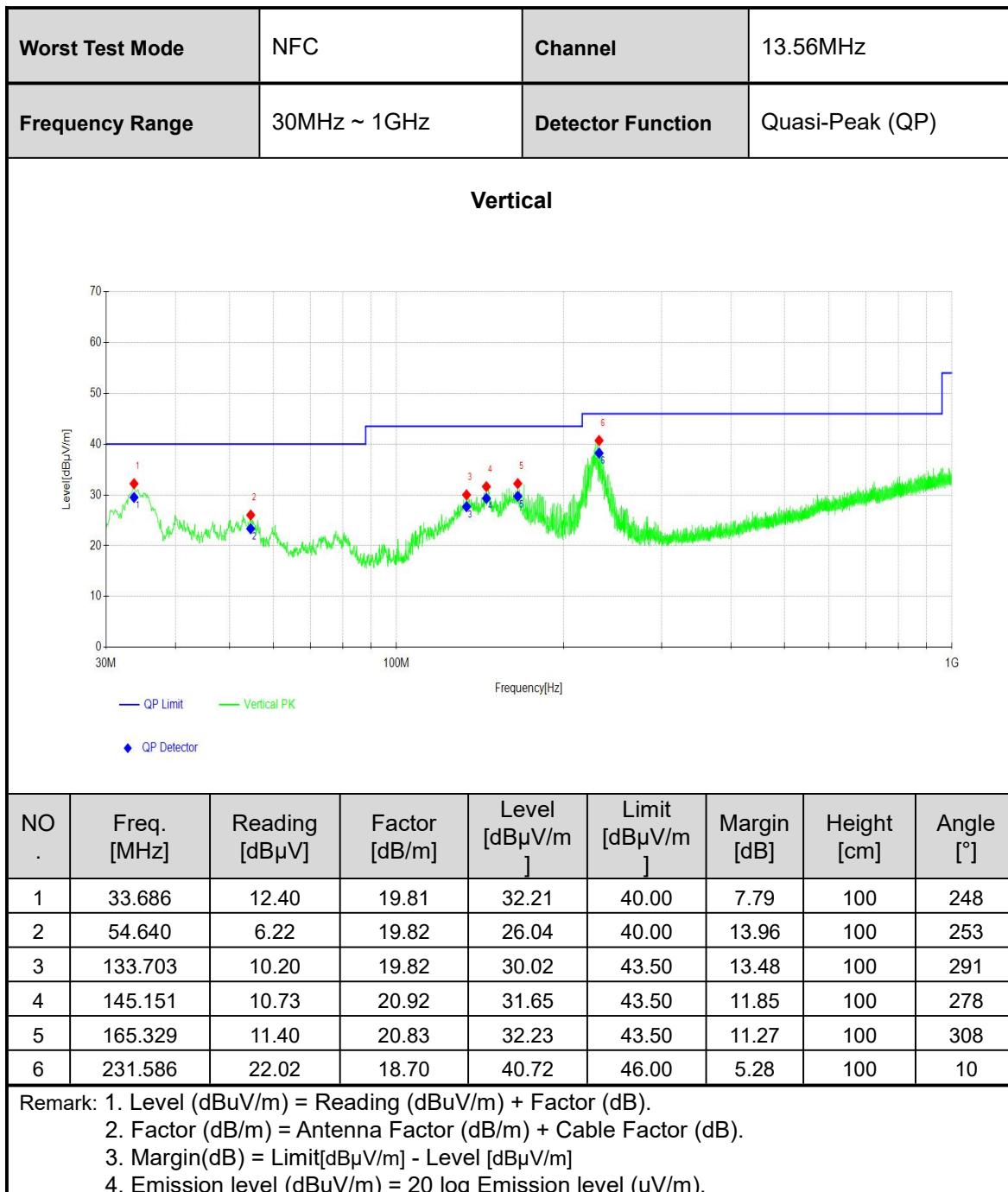
NO.	Freq. [MHz]	Reading [dBuV/m]	Factor [dB]	Level [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]
1	0.018	31.71	-59.35	-27.64	82.50	110.14	150	215
2	0.030	24.73	-59.18	-34.45	78.06	112.51	150	28
3	0.171	14.57	-59.61	-45.04	62.95	107.99	150	28
4	0.594	10.23	-18.80	-8.57	32.13	40.70	150	319
5	6.236	6.36	-19.31	-12.95	29.56	42.51	150	121
6	13.560	31.89	-19.90	11.99	29.55	17.56	150	191

Remark: 1. Conversion factor to 30m has been added to the factor.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
3. Factor (dB/m)=Antenna Factor (dB/m) + Cable Factor (dB).
4. Emission level (dBuV/m) = 20 log Emission level (uV/m).





Result of Radiated Emissions(30MHz~1GHz)




3.3 FREQUENCY TOLERANCE

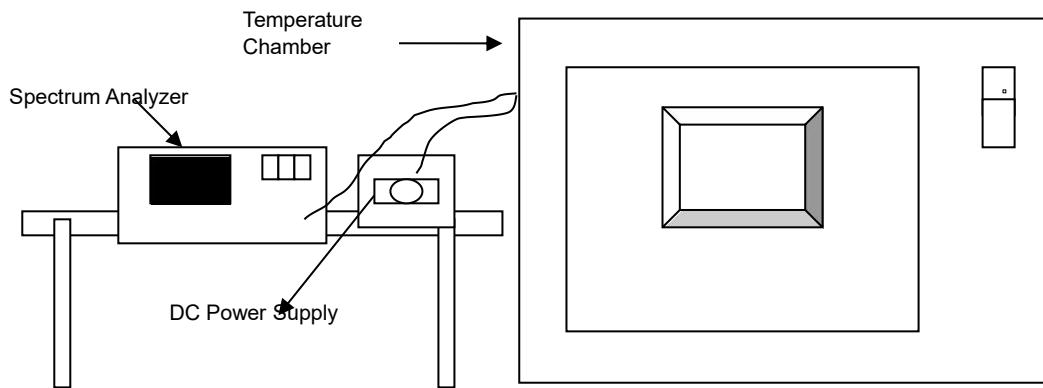
3.3.1 LIMIT OF FREQUENCY TOLERANCE

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ (100ppm) of the operating frequency over a temperature variation of -20 degrees to + 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

3.3.2 TEST PROCEDURES

Refer to ANSI C63.10-2020

3.3.3 TEST SETUP





3.3.4 TEST RESULTS

FREQUEMCY STABILITY VERSUS TEMP.									
TEMP. (°C)	POWER SUPPLY (V)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
50	5	13.55991	-6.64	13.55995	-3.69	13.55991	-6.64	13.55990	-7.37
40	5	13.55986	-10.32	13.55990	-7.37	13.55988	-8.85	13.55988	-8.85
30	5	13.55993	-5.16	13.55995	-3.69	13.55988	-8.85	13.55996	-2.95
20	5	13.55994	-4.42	13.55996	-2.95	13.55987	-9.59	13.55986	-10.32
10	5	13.55992	-5.90	13.55989	-8.11	13.55989	-8.11	13.55990	-7.37
0	5	13.55986	-10.32	13.55996	-2.95	13.55995	-3.69	13.55988	-8.85
-10	5	13.55986	-10.32	13.55994	-4.42	13.55990	-7.37	13.55992	-5.90
-20	5	13.55996	-2.95	13.55992	-5.90	13.55990	-7.37	13.55991	-6.64
20	4.5	13.55993	-5.16	13.55996	-2.95	13.55987	-9.59	13.55991	-6.64
	5.5	13.55994	-4.42	13.55986	-10.32	13.55995	-3.69	13.55989	-8.11



3.4 20dB BANDWIDTH

3.4.1 LIMITS OF 20dB BANDWIDTH

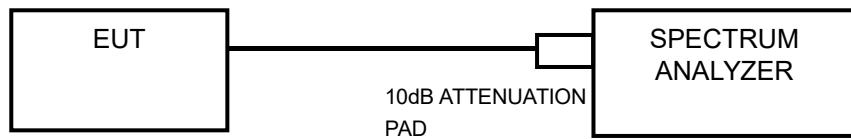
The 20dB bandwidth shall be specified in operating frequency band. (13.11MHz – 14.01MHz)

3.4.2 TEST PROCEDURE

- a. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- b. The resolution bandwidth of 1kHz and the video bandwidth of 3kHz were used.
- c. Measured spectrum width with power higher than 20dB below carrier.

Note: Because the measured singal is CW or CW-like adjust the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately the RBW

3.4.3 TEST SETUP





3.4.4 TEST RESULTS

Channel	Channel Frequency (MHz)	20db Bandwidth (KHz)
1	13.56	2.48

Lower & Upper Test Frequency Point (MHz)	Test Frequency (MHz)	P/F
Lower	13.5587	PASS
Upper	13.5611	PASS





4 PHOTOGRAPHS OF TEST SETUP

Please refer to the attached file (Test Photos).



5 PHOTOGRAPHS OF THE EUT

Please refer to the attached file (External Photos report and Internal Photos).

----- End of the Report -----



Important

- (1) The test report is invalid without the official stamp of CVC;
- (2) Any part photocopies of the test report are forbidden without the written permission from CVC;
- (3) The test report is invalid without the signatures of Approval and Reviewer;
- (4) The test report is invalid if altered;
- (5) Objections to the test report must be submitted to CVC within 15 days.
- (6) Generally, commission test is responsible for the tested samples only.
- (7) As for the test result “-” or “N” means “not applicable”, “/” means “not test”, “P” means “pass” and “F” means “fail”

Address: No. 1301-14&16, Guanguang Road, Xinlan Community, Guanlan Subdistrict, Longhua District, Shenzhen, Guangdong, China

Post Code: 518110 Tel: 0755-23763060-8805

Fax: 0755-23763060 E-mail: sz-kf@cvc.org.cn

<http://www.cvc.org.cn>