

FCC Test Report

Report No.: RF180420C01 R1

FCC ID: M82-WISE4210

Test Model: WISE-4210-S231

Series Model: WISE-4210-S251, WISE-4210-AP (Refer to item 3.1 for more details)

Received Date: Apr. 20, 2018

Test Date: Apr. 24 ~ Apr. 30, 2018

Issued Date: Oct. 03, 2018

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**FCC Registration /
Designation Number:** 788550 / TW0003



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Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 Summary of Test Results	5
2.1 Measurement Uncertainty.....	5
2.2 Modification Record.....	5
3 General Information	6
3.1 General Description of EUT.....	6
3.2 Description of Test Modes.....	6
3.2.1 Test Mode Applicability and Tested Channel Detail.....	7
3.3 Description of Support Units.....	8
3.3.1 Configuration of System under Test.....	8
3.4 General Description of Applied Standards.....	8
4 Test Types and Results	9
4.1 Radiated Emission and Bandedge Measurement.....	9
4.1.1 Limits of Radiated Emission and Bandedge Measurement.....	9
4.1.2 Test Instruments.....	10
4.1.3 Test Procedures.....	11
4.1.4 Deviation from Test Standard.....	11
4.1.5 Test Set Up.....	12
4.1.6 EUT Operating Conditions.....	13
4.1.7 Test Results.....	14
4.2 Conducted Emission Measurement.....	50
4.2.1 Limits of Conducted Emission Measurement.....	50
4.2.2 Test Instruments.....	50
4.2.3 Test Procedures.....	51
4.2.4 Deviation from Test Standard.....	51
4.2.5 Test Setup.....	51
4.2.6 EUT Operating Conditions.....	51
4.2.7 Test Results.....	52
5 Pictures of Test Arrangements	56
Appendix – Information on the Testing Laboratories	57

Release Control Record

Issue No.	Description	Date Issued
RF180420C01	Original release	May 02, 2018
RF180420C01 R1	Revised model difference description and modulation type	Oct. 03, 2018

1 Certificate of Conformity

Product: IoT Wireless Sensor Node

Brand: Advantech

Test Model: WISE-4210-S231

Series Model: WISE-4210-S251, WISE-4210-AP (Refer to item 3.1 for more details)

Applicant: ADVANTECH CO., LTD

Test Date: Apr. 24 ~ Apr. 30, 2018

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.249)
ANSI C63.10: 2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Oct. 03, 2018
Celine Chou / Senior Specialist

Approved by : Bruce Chen , **Date:** Oct. 03, 2018
Bruce Chen / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.249)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -1.71dB at 27.19938MHz.
15.209 15.249 15.249 (d)	Radiated Emission Test Band Edge Measurement Limit: 50dB less than the peak value of fundamental frequency or meet radiated emission limit in section 15.209	Pass	Meet the requirement of limit. Minimum passing margin is -0.2dB at 920.80MHz.

2.1 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:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.59 dB
	200MHz ~ 1000MHz	3.60 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	IoT Wireless Sensor Node
Brand	Advantech
Test Model	WISE-4210-S231
Series Model	WISE-4210-S251, WISE-4210-AP
Model Difference	Refer to note for more details
Power Supply Rating	24Vdc
Modulation Type	GFSK for 2.5kbps / 5kbps / 50kbps FSK for 625bps
Operating Frequency	920.8 ~ 924.4MHz
Transfer Rate	2.5kbps / 5kbps / 50kbps / 625bps
Number of Channel	10
Field Strength	2.5kbps: 87.9dBuV/m (3m) 5kbps: 87.9dBuV/m (3m) 50kbps: 93.8dBuV/m (3m) 625bps: 88.0dBuV/m (3m)
Antenna Type	Dipole antenna with 1.33dBi gain
Antenna Connector	Rev SMA
Accessory Device	Battery
Data Cable Supplied	NA

Note:

1. The following models are provided to this EUT.

Brand	Model	Description	
Advantech	WISE-4210-S231	RF module is the same, only the I/O port is different	Normal condition is TX + RX I/O : T/H sensor (Temperature and humidity sensor)
	WISE-4210-S251		Normal condition is TX + RX I/O : 6 x DI, RS485 x1
	WISE-4210-AP		Normal condition is TX + RX I/O : Ethernet x1, RS485X1

* The model of the WISE-4210-S231 was chosen for final test.

2. The EUT uses following battery.

Brand	RENATA
Model	CR1225FH-LF
Power Rating	3Vdc

* Battery mode only for RTC (Real Time Clock) function use

3.2 Description of Test Modes

10 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	920.8	4	922.0	7	923.2	10	924.4
2	921.2	5	922.4	8	923.6		
3	921.6	6	922.8	9	924.0		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To			Description
	RE \geq 1G	RE<1G	PLC	
A	√	√	-	2.5kbps
B	√	√	-	5kbps
C	√	√	√	50kbps
D	√	√	√	625bps

Where **RE \geq 1G**: Radiated Emission above 1GHz & Bandedge Measurement **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission

Note: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

Radiated Emission Test (Above 1GHz):

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

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type
A, B, C	1 to 10	1, 5, 10	GFSK
D	1 to 10	1, 5, 10	FSK

Radiated Emission Test (Below 1GHz):

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

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type
A, B, C	1 to 10	1	GFSK
D	1 to 10	1	FSK

Power Line Conducted Emission Test:

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

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type
C	1 to 10	1	GFSK
D	1 to 10	1	FSK

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE \geq 1G	25deg. C, 66%RH	24Vdc	James Yang
RE<1G	25deg. C, 66%RH	24Vdc	James Yang
PLC	25deg. C, 66%RH	24Vdc	Jones Chang

3.3 Description of Support Units

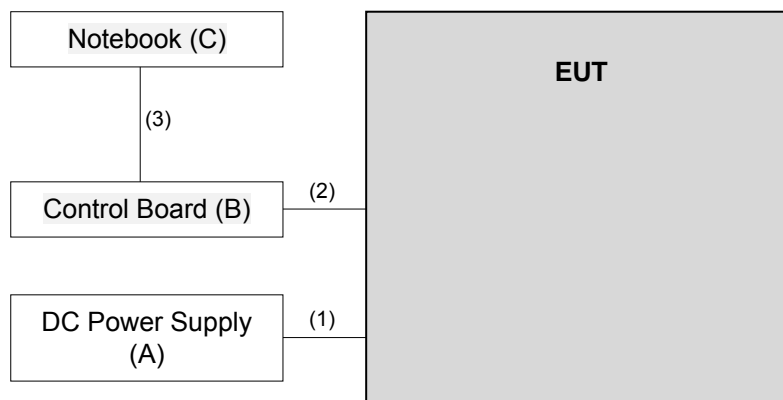
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	DC Power Supply	Topward	33010D	807748	NA	-
B.	Control Board	NA	NA	NA	NA	Provided by manufacturer
C.	Notebook	Lenovo	M700	PC0J5M3S	FCC DoC Approved	-

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Power cable	1	1.0	N	0	-
2.	Control cable	1	0.1	N	0	Provided by manufacturer
3.	USB cable	1	1.0	Y	0	Provided by manufacturer

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.249)

ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902 ~ 928 MHz	50	500
2400 ~ 2483.5 MHz	50	500
5725 ~ 5875 MHz	50	500
24 ~ 24.25 GHz	250	2500

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits as below table, whichever is the lesser attenuation

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.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 11, 2018	Apr. 10, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	May 11, 2017	May 10, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-148	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Dec. 12, 2017	Dec. 11, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Aug. 08, 2017	Aug. 07, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A01638	Feb. 22, 2018	Feb. 21, 2019
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 15, 2018	Jan. 14, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Aug. 08, 2017	Aug. 07, 2018
RF signal cable Woken	8D-FB	Cable-CH9-01	Aug. 01, 2017	Jul. 31, 2018
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 9.
 3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
 4. The IC Site Registration No. is IC 7450F-9.

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. 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. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case 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 Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. 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. The height of antenna 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

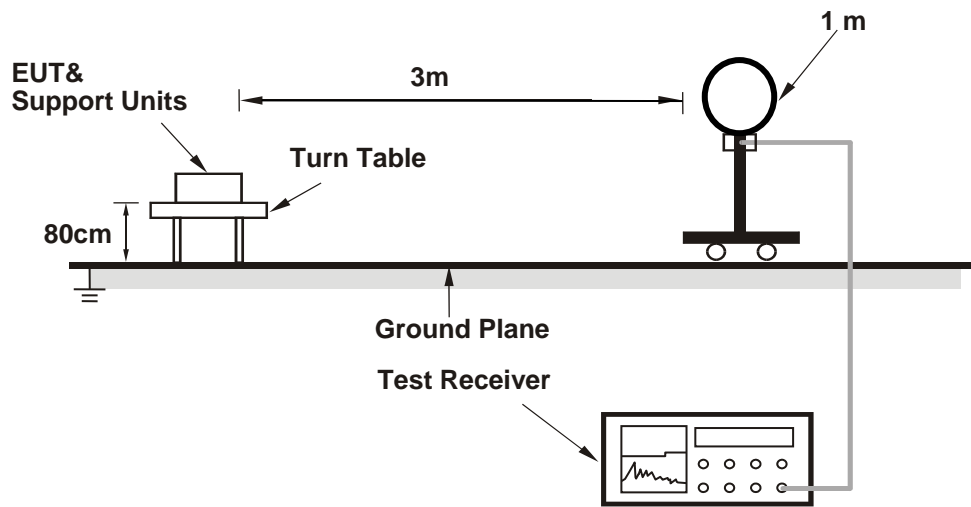
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10 Hz (Duty cycle $\geq 98\%$) for Peak detection at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

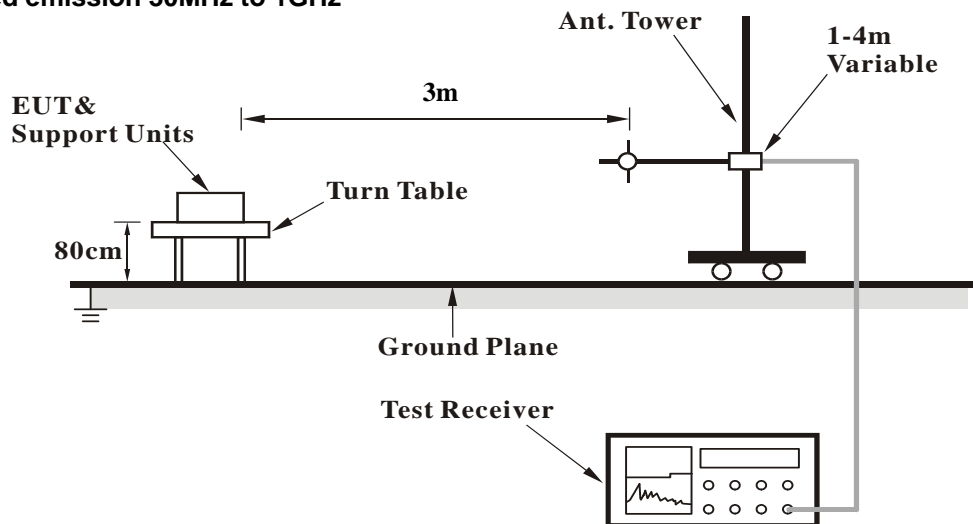
No deviation.

4.1.5 Test Set Up

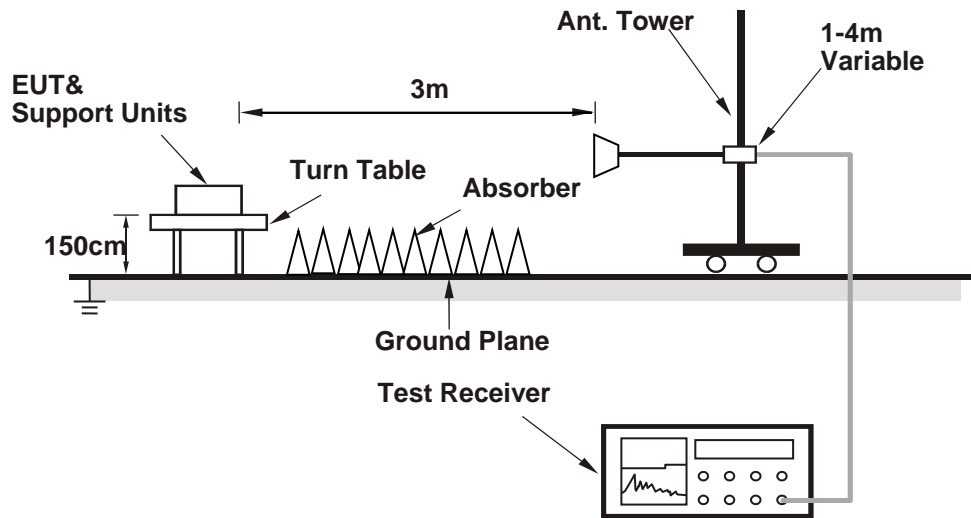
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Test Mode A (2.5kbps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	902.00	30.0 QP	46.0	-16.0	1.04 H	253	32.6	-2.6
2	*920.80	77.4 QP	94.0	-16.6	1.14 H	273	51.6	25.8

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	902.00	30.1 QP	46.0	-15.9	1.00 V	260	32.7	-2.6
2	*920.80	87.9 QP	94.0	-6.1	1.00 V	242	62.1	25.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * " : Fundamental frequency.

CHANNEL	TX Channel 5	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*922.40	77.6 QP	94.0	-16.4	1.12 H	271	51.8	25.8

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*922.40	87.7 QP	94.0	-6.3	1.00 V	243	61.9	25.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*924.40	77.7 QP	94.0	-16.3	1.14 H	272	51.9	25.8
2	928.00	29.7 QP	46.0	-16.3	1.10 H	279	31.6	-1.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*924.40	87.4 QP	94.0	-6.6	1.00 V	240	61.6	25.8
2	928.00	30.2 QP	46.0	-15.8	1.00 V	244	32.1	-1.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Test Mode B (5kbps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	902.00	29.8 QP	46.0	-16.2	1.11 H	242	32.4	-2.6
2	*920.80	77.8 QP	94.0	-16.2	1.13 H	272	52.0	25.8

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	902.00	30.2 QP	46.0	-15.8	1.01 V	233	32.8	-2.6
2	*920.80	87.9 QP	94.0	-6.1	1.00 V	241	62.1	25.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 5	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*922.40	77.9 QP	94.0	-16.1	1.14 H	271	52.1	25.8

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*922.40	87.6 QP	94.0	-6.4	1.00 V	242	61.8	25.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*924.40	77.5 QP	94.0	-16.5	1.10 H	268	51.7	25.8
2	928.00	29.5 QP	46.0	-16.5	1.09 H	288	31.4	-1.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*924.40	87.2 QP	94.0	-6.8	1.00 V	241	61.4	25.8
2	928.00	30.7 QP	46.0	-15.3	1.00 V	244	32.6	-1.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Test Mode C (50kbps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	902.00	30.3 QP	46.0	-15.7	1.50 H	128	32.9	-2.6
2	*920.80	90.2 QP	94.0	-3.8	1.52 H	132	64.4	25.8

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	902.00	33.7 QP	46.0	-12.3	1.00 V	190	36.3	-2.6
2	*920.80	93.8 QP	94.0	-0.2	1.00 V	193	68.0	25.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 5	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*922.40	90.7 QP	94.0	-3.3	1.48 H	130	64.9	25.8

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*922.40	93.7 QP	94.0	-0.3	1.00 V	193	67.9	25.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*924.40	90.4 QP	94.0	-3.6	1.46 H	128	64.6	25.8
2	928.00	38.6 QP	46.0	-7.4	1.49 H	129	40.5	-1.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*924.40	93.7 QP	94.0	-0.3	1.00 V	194	67.9	25.8
2	928.00	42.2 QP	46.0	-3.8	1.00 V	187	44.1	-1.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Test Mode D (625bps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	902.00	29.0 QP	46.0	-17.0	1.18 H	279	31.6	-2.6
2	*920.80	77.4 QP	94.0	-16.6	1.14 H	272	51.6	25.8

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	902.00	30.3 QP	46.0	-15.7	1.01 V	250	32.9	-2.6
2	*920.80	88.0 QP	94.0	-6.0	1.00 V	242	62.2	25.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 5	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*922.40	77.6 QP	94.0	-16.4	1.13 H	270	51.8	25.8

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*922.40	87.5 QP	94.0	-6.5	1.00 V	241	61.7	25.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	902MHz ~ 928MHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*924.40	78.0 QP	94.0	-16.0	1.11 H	271	52.2	25.8
2	928.00	30.4 QP	46.0	-15.6	1.15 H	273	32.3	-1.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*924.40	87.1 QP	94.0	-6.9	1.00 V	240	61.3	25.8
2	928.00	31.0 QP	46.0	-15.0	1.00 V	234	32.9	-1.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Above 1GHz Data

Test Mode A (2.5kbps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1841.60	35.4 PK	74.0	-38.6	1.79 H	300	42.5	-7.1
2	1841.60	22.2 AV	54.0	-31.8	1.79 H	300	29.3	-7.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1841.60	35.0 PK	74.0	-39.0	1.67 V	140	42.1	-7.1
2	1841.60	22.4 AV	54.0	-31.6	1.67 V	140	29.5	-7.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	TX Channel 5	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1844.80	34.0 PK	74.0	-40.0	1.89 H	70	41.1	-7.1
2	1844.80	22.4 AV	54.0	-31.6	1.89 H	70	29.5	-7.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1844.80	35.4 PK	74.0	-38.6	2.50 V	211	42.5	-7.1
2	1844.80	22.2 AV	54.0	-31.8	2.50 V	211	29.3	-7.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1848.80	35.8 PK	74.0	-38.2	1.79 H	114	42.9	-7.1
2	1848.80	22.0 AV	54.0	-32.0	1.79 H	114	29.1	-7.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1848.80	34.5 PK	74.0	-39.5	2.45 V	166	41.6	-7.1
2	1848.80	22.1 AV	54.0	-31.9	2.45 V	166	29.2	-7.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

Test Mode B (5kbps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1841.60	35.1 PK	74.0	-38.9	1.80 H	311	42.2	-7.1
2	1841.60	22.0 AV	54.0	-32.0	1.80 H	311	29.1	-7.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1841.60	34.8 PK	74.0	-39.2	1.71 V	151	41.9	-7.1
2	1841.60	22.4 AV	54.0	-31.6	1.71 V	151	29.5	-7.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	TX Channel 5	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1844.80	33.5 PK	74.0	-40.5	1.79 H	60	40.6	-7.1
2	1844.80	22.0 AV	54.0	-32.0	1.79 H	60	29.1	-7.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1844.80	35.0 PK	74.0	-39.0	2.40 V	201	42.1	-7.1
2	1844.80	22.0 AV	54.0	-32.0	2.40 V	201	29.1	-7.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1848.80	35.6 PK	74.0	-38.4	1.77 H	109	42.7	-7.1
2	1848.80	21.9 AV	54.0	-32.1	1.77 H	108	29.0	-7.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1848.80	34.2 PK	74.0	-39.8	2.38 V	163	41.3	-7.1
2	1848.80	21.9 AV	54.0	-32.1	2.38 V	163	29.0	-7.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

Test Mode C (50kbps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1841.60	41.7 PK	74.0	-32.3	2.17 H	140	48.8	-7.1
2	1841.60	38.1 AV	54.0	-15.9	2.17 H	140	45.2	-7.1
3	4604.00	48.3 PK	74.0	-25.7	2.25 H	299	48.3	0.0
4	4604.00	44.0 AV	54.0	-10.0	2.25 H	299	44.0	0.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1841.60	43.2 PK	74.0	-30.8	1.49 V	7	50.3	-7.1
2	1841.60	39.4 AV	54.0	-14.6	1.49 V	7	46.5	-7.1
3	4604.00	48.6 PK	74.0	-25.4	1.78 V	173	48.6	0.0
4	4604.00	44.5 AV	54.0	-9.5	1.78 V	173	44.5	0.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	TX Channel 5	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz	FUNCTION	Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1844.80	41.2 PK	74.0	-32.8	2.19 H	141	48.3	-7.1
2	1844.80	37.5 AV	54.0	-16.5	2.19 H	141	44.6	-7.1
3	4612.00	47.5 PK	74.0	-26.5	2.02 H	300	47.5	0.0
4	4612.00	43.6 AV	54.0	-10.4	2.02 H	300	43.6	0.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1844.80	43.1 PK	74.0	-30.9	1.48 V	355	50.2	-7.1
2	1844.80	39.9 AV	54.0	-14.1	1.48 V	355	47.0	-7.1
3	4612.00	48.9 PK	74.0	-25.1	2.17 V	251	48.9	0.0
4	4612.00	45.5 AV	54.0	-8.5	2.17 V	251	45.5	0.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	TX Channel 10	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz	FUNCTION	Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1848.80	41.2 PK	74.0	-32.8	2.21 H	141	48.3	-7.1
2	1848.80	37.2 AV	54.0	-16.8	2.21 H	141	44.3	-7.1
3	4622.00	48.0 PK	74.0	-26.0	2.15 H	301	47.9	0.1
4	4622.00	44.1 AV	54.0	-9.9	2.15 H	301	44.0	0.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1848.80	43.3 PK	74.0	-30.7	1.44 V	357	50.4	-7.1
2	1848.80	39.7 AV	54.0	-14.3	1.44 V	357	46.8	-7.1
3	4622.00	48.9 PK	74.0	-25.1	2.17 V	250	48.8	0.1
4	4622.00	45.7 AV	54.0	-8.3	2.17 V	250	45.6	0.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

Test Mode D (625bps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1841.60	35.8 PK	74.0	-38.2	1.86 H	320	42.9	-7.1
2	1841.60	22.6 AV	54.0	-31.4	1.86 H	320	29.7	-7.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1841.60	35.4 PK	74.0	-38.6	1.78 V	146	42.5	-7.1
2	1841.60	22.8 AV	54.0	-31.2	1.78 V	146	29.9	-7.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	TX Channel 5	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1841.20	35.8 PK	74.0	-38.2	1.86 H	320	42.9	-7.1
2	1841.20	22.6 AV	54.0	-31.4	1.86 H	320	29.7	-7.1
3	1844.80	34.6 PK	74.0	-39.4	1.85 H	66	41.7	-7.1
4	1844.80	22.5 AV	54.0	-31.5	1.85 H	66	29.6	-7.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1844.80	35.7 PK	74.0	-38.3	2.56 V	207	42.8	-7.1
2	1844.80	22.5 AV	54.0	-31.5	2.56 V	207	29.6	-7.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 10GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1848.80	36.1 PK	74.0	-37.9	1.82 H	118	43.2	-7.1
2	1848.80	22.2 AV	54.0	-31.8	1.82 H	118	29.3	-7.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1848.80	34.8 PK	74.0	-39.2	2.40 V	169	41.9	-7.1
2	1848.80	22.2 AV	54.0	-31.8	2.40 V	169	29.3	-7.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

Below 1GHz worst-case data

Test Mode A (2.5kbps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	149.31	39.4 QP	43.5	-4.1	1.00 H	110	52.7	-13.3
2	219.15	37.0 QP	46.0	-9.0	1.00 H	191	53.1	-16.1
3	409.27	35.8 QP	46.0	-10.2	1.99 H	113	46.5	-10.7
4	624.61	34.1 QP	46.0	-11.9	1.00 H	219	41.0	-6.9
5	749.74	33.2 QP	46.0	-12.8	1.00 H	201	37.9	-4.7
6	1000.00	38.7 QP	54.0	-15.3	1.00 H	136	39.7	-1.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	139.61	37.5 QP	43.5	-6.0	1.49 V	245	51.5	-14.0
2	399.57	38.9 QP	46.0	-7.1	1.00 V	196	49.8	-10.9
3	537.31	36.0 QP	46.0	-10.0	1.00 V	133	44.9	-8.9
4	788.54	33.5 QP	46.0	-12.5	1.00 V	343	37.6	-4.1
5	952.47	39.1 QP	46.0	-6.9	1.00 V	15	40.4	-1.3
6	1000.00	36.4 QP	54.0	-17.6	1.99 V	169	37.4	-1.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

CHANNEL	TX Channel 5	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	52.31	30.2 QP	40.0	-9.8	1.00 H	6	43.6	-13.4
2	125.06	32.5 QP	43.5	-11.0	1.00 H	5	47.8	-15.3
3	267.65	25.7 QP	46.0	-20.3	1.00 H	209	39.0	-13.3
4	342.34	25.6 QP	46.0	-20.4	1.00 H	259	37.4	-11.8
5	600.36	25.0 QP	46.0	-21.0	1.00 H	291	32.3	-7.3
6	864.20	25.3 QP	46.0	-20.7	1.00 H	265	28.4	-3.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	58.13	35.2 QP	40.0	-4.8	1.00 V	18	48.8	-13.6
2	107.60	24.9 QP	43.5	-18.6	1.00 V	129	41.8	-16.9
3	183.26	22.5 QP	43.5	-21.0	1.00 V	270	37.5	-15.0
4	478.14	24.9 QP	46.0	-21.1	1.00 V	170	34.4	-9.5
5	597.45	23.5 QP	46.0	-22.5	1.00 V	18	30.9	-7.4
6	846.74	24.4 QP	46.0	-21.6	1.00 V	346	27.6	-3.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	114.39	26.1 QP	43.5	-17.4	1.49 H	10	42.3	-16.2
2	143.49	24.9 QP	43.5	-18.6	1.00 H	190	38.6	-13.7
3	203.63	26.2 QP	43.5	-17.3	1.00 H	200	42.4	-16.2
4	350.10	24.7 QP	46.0	-21.3	1.00 H	99	36.4	-11.7
5	536.34	26.1 QP	46.0	-19.9	1.49 H	268	35.0	-8.9
6	740.04	32.4 QP	46.0	-13.6	1.00 H	274	37.3	-4.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	40.67	35.7 QP	40.0	-4.3	1.00 V	307	49.6	-13.9
2	143.49	26.3 QP	43.5	-17.2	1.00 V	83	40.0	-13.7
3	177.44	26.4 QP	43.5	-17.1	1.50 V	283	40.7	-14.3
4	314.21	21.7 QP	46.0	-24.3	1.00 V	194	33.7	-12.0
5	472.32	23.5 QP	46.0	-22.5	1.00 V	171	33.0	-9.5
6	729.37	35.3 QP	46.0	-10.7	1.50 V	167	40.5	-5.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

Test Mode B (5kbps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.91	28.6 QP	40.0	-11.4	1.00 H	39	43.4	-14.8
2	134.76	30.4 QP	43.5	-13.1	1.00 H	330	44.8	-14.4
3	333.61	30.1 QP	46.0	-15.9	1.00 H	252	41.8	-11.7
4	431.58	31.3 QP	46.0	-14.7	1.00 H	323	41.4	-10.1
5	704.15	28.6 QP	46.0	-17.4	1.00 H	233	34.4	-5.8
6	915.61	27.8 QP	46.0	-18.2	1.00 H	265	29.8	-2.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.91	35.8 QP	40.0	-4.2	1.00 V	203	50.6	-14.8
2	176.47	27.2 QP	43.5	-16.3	1.00 V	276	41.4	-14.2
3	431.58	28.5 QP	46.0	-17.5	1.00 V	244	38.6	-10.1
4	541.19	23.4 QP	46.0	-22.6	1.00 V	176	32.2	-8.8
5	747.80	43.0 QP	46.0	-3.0	1.00 V	53	47.7	-4.7
6	960.23	36.0 QP	54.0	-18.0	1.00 V	19	37.3	-1.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

CHANNEL	TX Channel 5	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.91	28.1 QP	40.0	-11.9	1.00 H	9	42.9	-14.8
2	142.52	28.0 QP	43.5	-15.5	1.00 H	24	41.7	-13.7
3	287.05	28.1 QP	46.0	-17.9	1.00 H	217	40.6	-12.5
4	444.19	29.3 QP	46.0	-16.7	1.00 H	319	39.2	-9.9
5	704.15	27.5 QP	46.0	-18.5	1.00 H	247	33.3	-5.8
6	990.30	27.1 QP	54.0	-26.9	1.00 H	110	28.2	-1.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.70	36.4 QP	40.0	-3.6	1.00 V	357	50.5	-14.1
2	143.49	24.1 QP	43.5	-19.4	1.00 V	60	37.8	-13.7
3	409.27	27.0 QP	46.0	-19.0	1.00 V	349	37.7	-10.7
4	714.82	25.4 QP	46.0	-20.6	1.00 V	210	30.9	-5.5
5	820.55	25.4 QP	46.0	-20.6	1.00 V	262	29.0	-3.6
6	984.48	26.1 QP	54.0	-27.9	1.00 V	202	27.3	-1.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	52.31	22.9 QP	40.0	-17.1	1.00 H	31	36.3	-13.4
2	131.85	32.3 QP	43.5	-11.2	1.49 H	10	47.0	-14.7
3	183.26	25.8 QP	43.5	-17.7	1.49 H	216	40.8	-15.0
4	276.38	29.8 QP	46.0	-16.2	1.00 H	227	42.6	-12.8
5	419.94	27.4 QP	46.0	-18.6	1.00 H	316	37.9	-10.5
6	729.37	39.4 QP	46.0	-6.6	1.00 H	18	44.6	-5.2
7	924.34	34.2 QP	46.0	-11.8	1.49 H	260	36.3	-2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	40.67	35.6 QP	40.0	-4.4	1.00 V	269	49.5	-13.9
2	131.85	28.5 QP	43.5	-15.0	1.49 V	107	43.2	-14.7
3	228.85	20.5 QP	46.0	-25.5	1.00 V	227	36.5	-16.0
4	403.45	26.3 QP	46.0	-19.7	1.00 V	348	37.1	-10.8
5	729.37	29.1 QP	46.0	-16.9	1.49 V	283	34.3	-5.2
6	949.56	30.7 QP	46.0	-15.3	1.00 V	19	32.3	-1.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

Test Mode C (50kbps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.70	31.4 QP	40.0	-8.6	1.49 H	77	45.5	-14.1
2	119.24	38.6 QP	43.5	-4.9	1.49 H	13	54.3	-15.7
3	276.38	29.8 QP	46.0	-16.2	1.00 H	227	42.6	-12.8
4	460.68	41.0 QP	46.0	-5.0	1.49 H	220	50.6	-9.6
5	686.69	30.4 QP	46.0	-15.6	1.00 H	271	36.5	-6.1
6	936.95	29.3 QP	46.0	-16.7	1.49 H	94	31.1	-1.8

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	45.52	34.8 QP	40.0	-5.2	1.00 V	278	48.4	-13.6
2	136.70	31.2 QP	43.5	-12.3	1.00 V	309	45.4	-14.2
3	236.61	29.1 QP	46.0	-16.9	1.49 V	196	44.1	-15.0
4	460.31	45.2 QP	46.0	-0.8	1.00 V	102	54.8	-9.6
5	746.83	33.7 QP	46.0	-12.3	1.49 V	285	38.4	-4.7
6	933.07	38.2 QP	46.0	-7.8	1.00 V	130	40.0	-1.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

CHANNEL	TX Channel 5	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.70	32.7 QP	40.0	-7.3	1.00 H	45	46.8	-14.1
2	119.24	35.1 QP	43.5	-8.4	1.00 H	32	50.8	-15.7
3	276.38	30.1 QP	46.0	-15.9	1.50 H	211	42.9	-12.8
4	461.65	39.1 QP	46.0	-6.9	1.00 H	201	48.7	-9.6
5	597.45	24.6 QP	46.0	-21.4	2.00 H	284	32.0	-7.4
6	877.78	25.2 QP	46.0	-20.8	1.50 H	41	28.1	-2.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	119.24	29.8 QP	43.5	-13.7	1.00 V	315	45.5	-15.7
2	176.47	26.7 QP	43.5	-16.8	1.00 V	305	40.9	-14.2
3	282.20	30.4 QP	46.0	-15.6	1.00 V	196	43.0	-12.6
4	461.19	44.8 QP	46.0	-1.2	1.00 V	99	54.4	-9.6
5	627.52	23.9 QP	46.0	-22.1	1.00 V	242	30.7	-6.8
6	934.04	37.7 QP	46.0	-8.3	1.00 V	78	39.5	-1.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.70	31.4 QP	40.0	-8.6	1.00 H	69	45.5	-14.1
2	119.24	35.2 QP	43.5	-8.3	1.00 H	38	50.9	-15.7
3	276.38	28.4 QP	46.0	-17.6	1.50 H	231	41.2	-12.8
4	462.62	41.9 QP	46.0	-4.1	1.00 H	122	51.5	-9.6
5	686.69	32.7 QP	46.0	-13.3	1.00 H	269	38.8	-6.1
6	944.71	29.5 QP	46.0	-16.5	1.50 H	270	31.2	-1.7

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	45.52	35.5 QP	40.0	-4.5	1.00 V	330	49.1	-13.6
2	136.70	38.2 QP	43.5	-5.3	1.00 V	114	52.4	-14.2
3	314.21	22.4 QP	46.0	-23.6	1.00 V	225	34.4	-12.0
4	462.29	45.0 QP	46.0	-1.0	1.00 V	99	54.6	-9.6
5	704.15	28.3 QP	46.0	-17.7	1.00 V	207	34.1	-5.8
6	940.83	35.9 QP	46.0	-10.1	1.00 V	78	37.6	-1.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

Test Mode D (625bps)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.70	32.8 QP	40.0	-7.2	1.00 H	54	46.9	-14.1
2	119.24	34.9 QP	43.5	-8.6	1.00 H	35	50.6	-15.7
3	275.41	30.2 QP	46.0	-15.8	1.50 H	208	43.0	-12.8
4	431.58	31.6 QP	46.0	-14.4	1.00 H	317	41.7	-10.1
5	600.36	25.1 QP	46.0	-20.9	1.50 H	311	32.4	-7.3
6	853.53	24.4 QP	46.0	-21.6	1.00 H	357	27.6	-3.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	136.70	30.2 QP	43.5	-13.3	1.00 V	307	44.4	-14.2
2	177.44	26.4 QP	43.5	-17.1	1.50 V	283	40.7	-14.3
3	300.63	23.6 QP	46.0	-22.4	1.00 V	186	35.9	-12.3
4	460.68	35.8 QP	46.0	-10.2	1.00 V	102	45.4	-9.6
5	729.37	33.3 QP	46.0	-12.7	1.50 V	107	38.5	-5.2
6	872.93	25.9 QP	46.0	-20.1	1.00 V	319	28.9	-3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

CHANNEL	TX Channel 5	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.70	30.6 QP	40.0	-9.4	1.00 H	61	44.7	-14.1
2	119.24	35.1 QP	43.5	-8.4	1.50 H	36	50.8	-15.7
3	276.38	30.5 QP	46.0	-15.5	1.00 H	209	43.3	-12.8
4	431.58	30.8 QP	46.0	-15.2	2.00 H	321	40.9	-10.1
5	600.36	25.0 QP	46.0	-21.0	1.00 H	291	32.3	-7.3
6	864.20	25.3 QP	46.0	-20.7	1.00 H	265	28.4	-3.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	119.24	31.0 QP	43.5	-12.5	2.00 V	309	46.7	-15.7
2	267.65	34.2 QP	46.0	-11.8	1.00 V	73	47.5	-13.3
3	461.65	34.7 QP	46.0	-11.3	2.00 V	106	44.3	-9.6
4	626.55	25.8 QP	46.0	-20.2	1.50 V	223	32.7	-6.9
5	746.83	29.5 QP	46.0	-16.5	1.00 V	18	34.2	-4.7
6	970.90	26.7 QP	54.0	-27.3	1.00 V	44	27.8	-1.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

CHANNEL	TX Channel 10	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.70	30.8 QP	40.0	-9.2	1.00 H	47	44.9	-14.1
2	119.24	34.9 QP	43.5	-8.6	2.00 H	20	50.6	-15.7
3	275.41	30.2 QP	46.0	-15.8	1.50 H	220	43.0	-12.8
4	462.62	31.9 QP	46.0	-14.1	1.00 H	111	41.5	-9.6
5	686.69	30.9 QP	46.0	-15.1	1.50 H	283	37.0	-6.1
6	948.59	26.2 QP	46.0	-19.8	1.00 H	41	27.8	-1.6

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	45.52	35.9 QP	40.0	-4.1	1.00 V	337	49.5	-13.6
2	133.79	31.2 QP	43.5	-12.3	1.00 V	190	45.7	-14.5
3	299.66	22.9 QP	46.0	-23.1	2.00 V	172	35.2	-12.3
4	462.62	34.7 QP	46.0	-11.3	1.00 V	102	44.3	-9.6
5	620.73	23.9 QP	46.0	-22.1	1.50 V	283	30.8	-6.9
6	915.61	29.6 QP	46.0	-16.4	1.00 V	339	31.6	-2.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 06, 2018	Mar. 05, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 1.
 3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

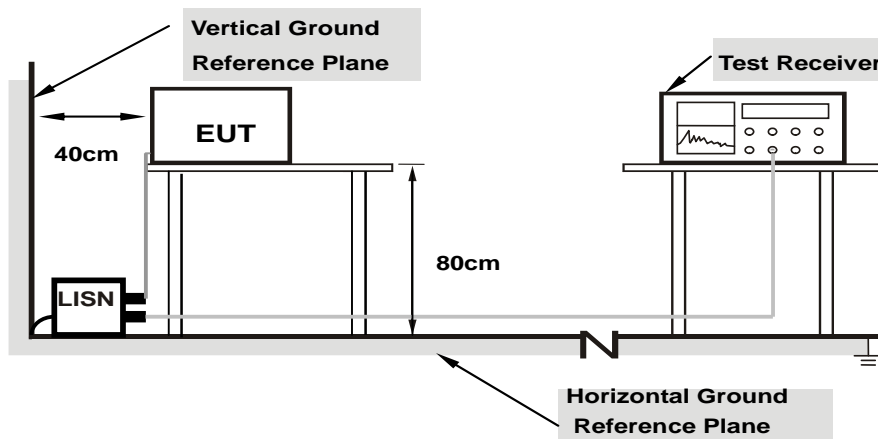
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

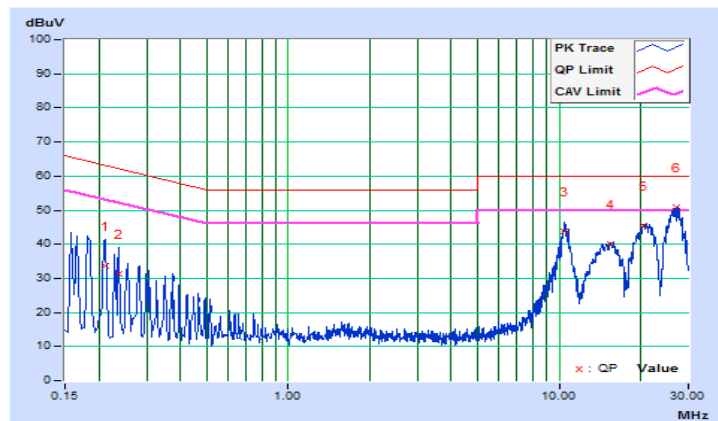
Test Mode C (50kbps)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	Channel 1		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.21170	10.10	23.55	0.25	33.65	10.35	63.14
2	0.23602	10.10	21.15	0.12	31.25	10.22	62.24	52.24	-30.99	-42.02
3	10.48253	10.66	33.02	31.15	43.68	41.81	60.00	50.00	-16.32	-8.19
4	15.39900	10.96	29.04	27.74	40.00	38.70	60.00	50.00	-20.00	-11.30
5	20.39989	11.25	34.36	32.89	45.61	44.14	60.00	50.00	-14.39	-5.86
6	27.19938	11.53	39.30	36.76	50.83	48.29	60.00	50.00	-9.17	-1.71

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

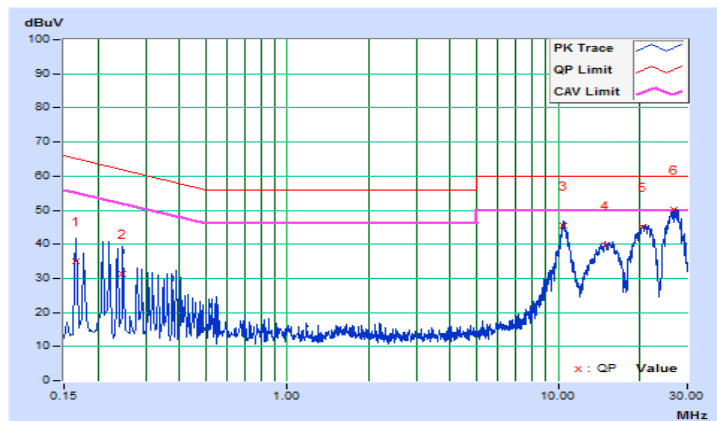


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	Channel 1		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.16564	10.09	24.83	1.63	34.92	11.72	65.18
2	0.24775	10.10	21.27	0.53	31.37	10.63	61.83	51.83	-30.46	-41.20
3	10.48022	10.57	34.86	33.04	45.43	43.61	60.00	50.00	-14.57	-6.39
4	15.00007	10.77	29.01	27.81	39.78	38.58	60.00	50.00	-20.22	-11.42
5	20.39989	10.99	34.27	32.79	45.26	43.78	60.00	50.00	-14.74	-6.22
6	26.67935	11.17	38.90	36.73	50.07	47.90	60.00	50.00	-9.93	-2.10

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



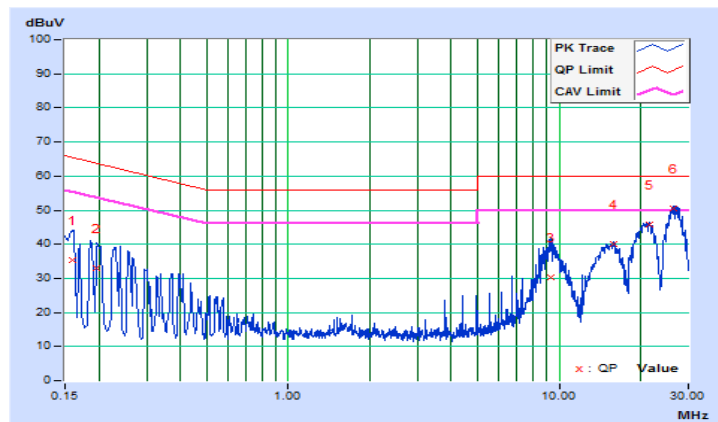
Test Mode D (625bps)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	Channel 1		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15969	10.10	25.17	1.21	35.27	11.31	65.48
2	0.19692	10.10	22.79	0.74	32.89	10.84	63.74	53.74	-30.85	-42.90
3	9.27985	10.59	19.67	17.79	30.26	28.38	60.00	50.00	-29.74	-21.62
4	15.87993	10.98	29.13	27.70	40.11	38.68	60.00	50.00	-19.89	-11.32
5	21.47905	11.29	34.55	32.58	45.84	43.87	60.00	50.00	-14.16	-6.13
6	26.51904	11.51	38.92	36.34	50.43	47.85	60.00	50.00	-9.57	-2.15

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

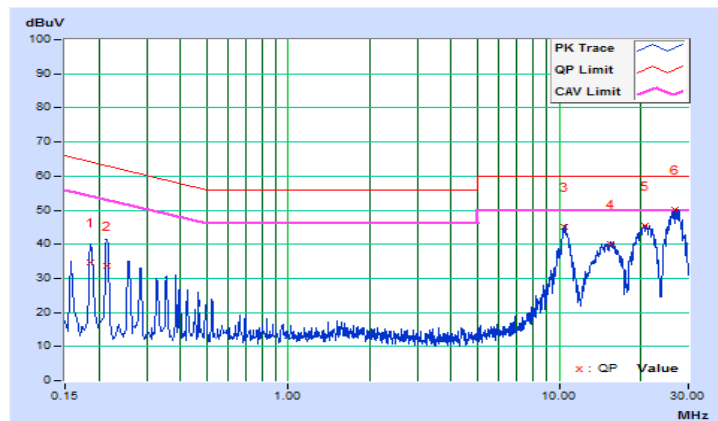


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	Channel 1		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.18557	10.09	24.70	0.92	34.79	11.01	64.23
2	0.21282	10.09	23.60	0.34	33.69	10.43	63.09	53.09	-29.40	-42.66
3	10.48022	10.57	34.61	33.03	45.18	43.60	60.00	50.00	-14.82	-6.40
4	15.39900	10.78	29.13	27.81	39.91	38.59	60.00	50.00	-20.09	-11.41
5	20.63840	11.00	34.29	32.25	45.29	43.25	60.00	50.00	-14.71	-6.75
6	26.71845	11.17	39.00	36.76	50.17	47.93	60.00	50.00	-9.83	-2.07

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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