

TEST REPORT

STANDARD : FCC Part 15B-Scanning Receiver
: Industry Canada RSS-215 Issue 2

Applicant	Testing Laboratory
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Equipment Type	HF/50MHz Transceiver
Category	Scanning Receiver
Trademark	YAESU
Model(s)	FT DX 5000
Serial No.	9L000001
Equipment Authorization	Certification (FCC ID : K6620361X60, IC : 511B-20361X60)
Test Result	Complied
Report Number	JT09110005(R1)
Report Issue Date	December 9, 2009

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The test report JT09110005 has been superseded by this test report.

Approved by



Kazuo Gokita
[Manager]

Tested by



Atsuyuki Morishima



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SECTION 1. GENERAL INFORMATION

TEST PERFORMED

Location	Tochigi No.2 Test Site
EUT Received	November 10, 2009
Date of Test	From November 10, 2009 to November 14, 2009
Standard Applied	FCC Part15B – Scanning Receiver Industry Canada RSS-215 Issue 2 * * It is not covered by accredited scope of VLAC.
Measurement methods	ANSI C63.4-2003
Test Procedure	Document number : RJP-EM001, RJP-EM003
Deviation from Standard(s)	None

Note : As for the ICES-003 “Digital Apparatus”, the EUT has been measured.

Refer to report No.“JT09110007”.

As for the FCC Part15B Class B “Peripherals”, the EUT has been measured.

Refer to report No.“JT09110006”.

QUALIFICATIONS OF TESTING LABORATORY

ACCREDITATION	SCOPE	LAB. CODE	Remarks
VLAC	EMC Testing	VLAC-008-5	JAPAN
BSMI	EMC Testing	SL2-IN-E-6017, SL2-A-E-6017	TAIWAN
FILING			
VCCI	EMC Testing	R-257, C-260, C-284, T-374, T-375 R-258, C-261, C-285, T-376, T-377 R-259, C-262, T-378	JAPAN
FCC	EMC Testing	Designation Number : JP0011	USA
IC	EMC Testing	2042P-1, 2042P-2	CANADA
SAUDI ARABIA	EMC Testing	N/A	

ABBREVIATIONS

EUT	Equipment Under Test	DoC	Declaration of Conformity
AMN	Artificial Mains Network	ISN	Impedance Stabilization Network
LISN	Line Impedance Stabilization Network	Q-P	Quasi-peak
AMP	Amplifier	AVG	Average
ATT	Attenuator	PK	Peak
ANT	Antenna	Cal	Calibration
BBA	Broadband Antenna	N/A	Not applicable or Not available
DIP	Dipole Antenna	LCD	Liquid-Crystal Display
AE	Associated Equipment		

SECTION 2. SUMMARY OF TEST RESULTS

The minimum margins to the limits are as follows:

Conducted disturbance at mains terminals	Rx A:B:30.000MHz(ANT 1) mode 8.1 dB (1.5945 MHz) AV
Radiated disturbance	Rx A:B:0.030MHz(ANT 1) mode 4.4 dB (88.80 MHz)
Conducted Power on Antenna Port	VFO SCAN(RX ANT) mode 6.9 dB(33.60 MHz)
38dB Rejection Test (15.121(b))	No frequency of response was detected – Passed-

Note : See Section 10 for details.

< Measurement data correction >

- * Conducted disturbance at mains terminals
 - Emission Level [dBμV] = Meter Reading [dBμV] + Factor [dB]
 - Margin [dB] = Limit [dBμV] - Emission Level [dBμV]
 - * Factor = LISN Factor + Cable Loss + ATT
- * Radiated disturbance
 - Emission Level [dBμV/m] = Meter Reading [dBμV] + Factor [dB/m]
 - Margin [dB] = Limit [dBμV/m] - Emission Level [dBμV/m]
 - * Factor = Antenna Factor + Cable Loss - Amplifier Gain + ATT
(– Distance Conversion Factor)
- * Conducted Power on Antenna Port
 - Emission Level [dBμV/m] = Meter Reading [dBμV] + Factor [dB]
 - Margin [dB] = Limit [dBμV] - Emission Level [dBμV]
 - * Factor = Pad +Cable Loss - Amplifier Gain

SECTION 3. EQUIPMENT UNDER TEST

The equipment under test (EUT) consisted of the following apparatus.

3.1 System Configuration

Symbol	Item	Model No.	Serial No.	Manufacturer	Notes	FCC ID
A1	HF/50MHz Transceiver	FT DX 5000	9L000001	Vertex Standard	EUT	K6620361X60
A2	Data Management Unit	DMU-2000	7D060071	Vertex Standard	Option	DoC
A3	Microphone	MH-31B8	None	Vertex Standard	Accessory	N/A
A4	Remote Control Keypad	FH-2	None	Vertex Standard	Option	N/A
A5	Headphone	YH-77STA	None	Vertex Standard	Option	N/A
A6	Speaker	SP-2000	70006	Vertex Standard	Option	N/A
A7	u-Tuning	MTU-160	6N004	Vertex Standard	Option	N/A
A8	u-Tuning	MTU-80/40	6N004	Vertex Standard	Option	N/A
A9	u-Tuning	MTU-30/20	6N004	Vertex Standard	Option	N/A
Rated Power : FT DX 5000 : AC90-264 V, 50/60 Hz, 80 VA (RX), 720 VA (TX) DMU-2000 : AC100-240 V, 50/60 Hz, 50 VA						
Supplied Power : FT DX 5000 : AC120 V, 60 Hz , DMU-2000 : AC120 V, 60 Hz						
Condition of Equipment		Prototype				
Type		Tabletop				
Suppression Devices		No Modifications by the laboratory were made to the device				

3.2 Overview of EUT

Frequency Ranges	0.030 – 60.000 MHz
Receiver Type	Triple Conversion Super-heterodyne
Model of Operation	A1A, A3E, F3E, J3E

3.3 Intermediate Frequencies

1st	Main : 9.000 MHz (Upper), Sub : 40.455 MHz (Upper)
2nd	Main : 30 kHz SSB/CW, 24 kHz FM/AM, Sub : 455 kHz (Lower)
3rd	Sub : 30 kHz SSB/CW, 24 kHz FM/AM

3.4 Oscillator(s) / Crystal(s)

Base Clock	Operating Frequency	Board Name	Remarks
11.1 MHz	11.1 MHz	CNTL Unit	
18.432 MHz	18.432 MHz	DSP Unit	X7001
18.432 MHz	18.432 MHz	DSP Unit	X7501
400.000 MHz	9.030-69.000 MHz	Local Unit	VFO (A)
400.000 MHz	40.485-100.455 MHz	Local Unit	VFO (B)
40.000 MHz	425 kHz	Local Unit	SSB/CW
40.000 MHz	400.000 MHz	Local Unit	
133 MHz	667 MHz	EBC365LP6	DMU-2000 (Highest Frequency)

3.5 Port(s)/Connector(s)

Port Name	Connector Type	Connector Pin	Remarks
Mic.	FM214-8SMPT-NI	8 pin	Front
Phone	6 ϕ Stereo	1 pin	Front
KEY	6 ϕ Stereo	1 pin	Front
Mic.	RCA	1 pin	
ANT1, 2, 3, 4, RX	MR-S	1 pin	
RX OUT	BNC	1 pin	
CAT	D-sub	9 pin	
ROTATOR	Mini-DIN	6 pin	
EXT.ALC	RCA	1 pin	
BAND DATA	DIN	8 pin	
TX GND	RCA	1 pin	
TRV	RCA	1 pin	
PACKET	DIN	5 pin	
RTTY	DIN	4 pin	
AF OUT	3.5 ϕ Mono	1 pin	
EXT.SPKR	3.5 ϕ Mono	1 pin	
V-AF	3.5 ϕ Mono	1 pin	
PTT	RCA	1 pin	
+13.8V	RCA	1 pin	
REC	RCA	1 pin	
TX REC	RCA	1 pin	
IF OUT	RCA	1 pin	
REMOTE	3.5 ϕ Mono	1 pin	
u-Tune (TO)	RCA	1 pin	
u-Tune (FROM)	RCA	1 pin	
u-Tune	Mini-DIN	10 pin	
DMU	Mini-DIN	8 pin	
KEY	6 ϕ Stereo	1 pin	

3.6 Frequency Range of Measurements

	Required Measurement Frequency Range	Measured Frequency Range
Conducted disturbance at mains terminals	0.15 – 30 MHz	0.15 – 30 MHz
Radiated disturbance	30 – 5000 MHz	30 – 5000 MHz
Conducted Power on Antenna Port (15.111)	30 – 5000 MHz	30 – 5000 MHz
38dB Rejection Test (15.121(b))	0.030 – 60 MHz	0.030 – 60 MHz

SECTION 4. SUPPORT EQUIPMENT

The EUT was supported by the following equipment during the test.

Symbol	Item	Model No.	Serial No.	Manufacturer	Remarks	FCC ID
B	CF Card	FC-32MH	None	Canon		N/A
C	GPS Receiver	Etrex Venture	73800627	Germin International		DoC
D	Ext. Keyboard	RT7D00	TH-054EXM-371 71-19D-1655	DELL		AQ6-7D0080COB
E	Ext. Display	E172FPb	None	DELL		DoC
F	Computer	DMC	FXYKV1X	DELL		DoC
G	Display	E176FPb	None	DELL		DoC
H	Keyboard	SK-8115	None	DELL		DoC
I	Mouse	MO56UOA	E1900IT0	DELL		DoC
J	Printer	C8154AL	TH71Q5Z024	Hewlett Packard		Doc
K	AC Adapter	0957-2171	E151B100MU02L	Hewlett Packard		DoC
Supplied Power:						
E, F, G, K	AC120 V, 60 Hz					

SECTION 5. USED CABLE(S)

The following cable(s) was used for the test.

No.	Name	Length (m)	Shield	Metal Connector	Ferrite Core
1	Microphone cable	0.50	Yes	Metal	
2	Keypad (FH-2) cable	1.00	Yes	Metal	
3	Headphone cable	1.80	Yes	Metal	
4	KEY cable	0.60	Yes	Metal	
5	u-Tune (TO) cable	1.20	Yes	Metal	
6	u-Tune (FROM) cable	1.20	Yes	Metal	
7	ROTATOR cable	1.50	Yes	Metal	
8	LINER (BAND DATA) cable	2.00	Yes	Metal	
9	IF OUT cable	1.20	Yes	Metal	
10	RTTY cable	1.10	Yes	Metal	
11	PTT cable	1.50	Yes	Metal	
12	REC cable	2.00	Yes	Metal	
13	EXT. SPKR cable	1.00	Yes	Metal	
14	KEY cable	1.10	Yes	Metal	
15	u-Tune cable	1.10	Yes	Metal	
16	DMU cable	1.40	Yes	Metal	
17	CAT cable	1.80	Yes	Metal	
18	USB cable	1.00	Yes	Metal	
19	Ext. Keyboard cable	1.50	Yes	Metal	
20	Ext. Display cable	1.80	Yes	Metal	
21	COM (GPS) cable	2.00	Yes	Metal	
22	AUDIO IN cable	1.50	Yes	Metal	
23	AUDIO OUT cable	1.10	Yes	Metal	
24	Centronics cable	2.40	Yes	Metal	
25	Keyboard cable	2.00	Yes	Metal	
26	Mouse cable	1.80	Yes	Metal	
27	Display cable	1.80	Yes	Metal	Fixed x1
28	PKT cable	1.50	Yes	Metal	
29	u-Tune (CNTL) cable	1.10	Yes	Metal	
30	V-AF cable	1.00	Yes	Metal	
31	AF-OUT cable	1.50	Yes	Metal	
32	Mic. cable	1.20	Yes	Metal	

33	EXT ALC cable	1.00	No	Metal	
34	TRV cable	1.10	No	Metal	
35	TX REQ cable	1.00	No	Metal	
36	+13.8V cable	1.00	No	Metal	
37	TX GND cable	1.90	No	Metal	
38	GND cable	1.50	No	N/A	
39	u-Tune (CNTL) cable	1.10	Yes	Metal	
40	u-Tune (RF) cable	1.10	Yes	Metal	
41	u-Tune (CNTL) cable	1.10	Yes	Metal	
42	u-Tune (RF) cable	1.10	Yes	Metal	
43	Power cable for Printer (DC)	1.70	No	No	
44	Power cable for FT dx 5000 (AC)	2.20	No	No	
45	Power cable for DMU-2000 (AC)	1.40	No	No	
46	Power cable for Ext. Display (AC)	1.80	No	No	
47	Power cable for Display (AC)	1.80	No	No	
48	Power cable for Printer (AC)	2.00	No	No	
49	Power cable for Computer (AC)	1.90	No	No	

Note : No. 27 cable is supplied together with Display (G).

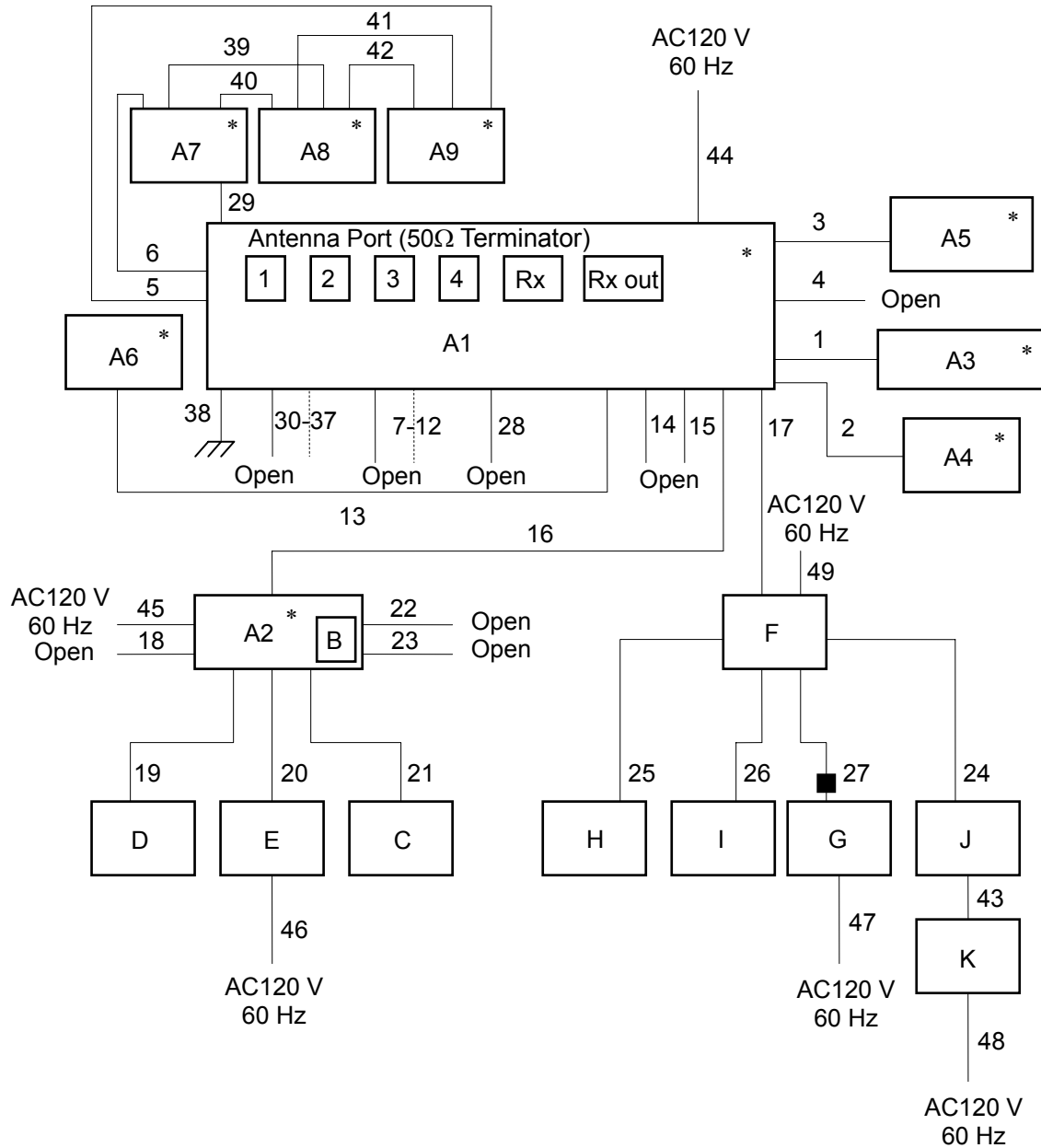
SECTION 6. TEST CONFIGURATION

6.1 Conducted disturbance at mains terminals

Radiated disturbance

* : EUT

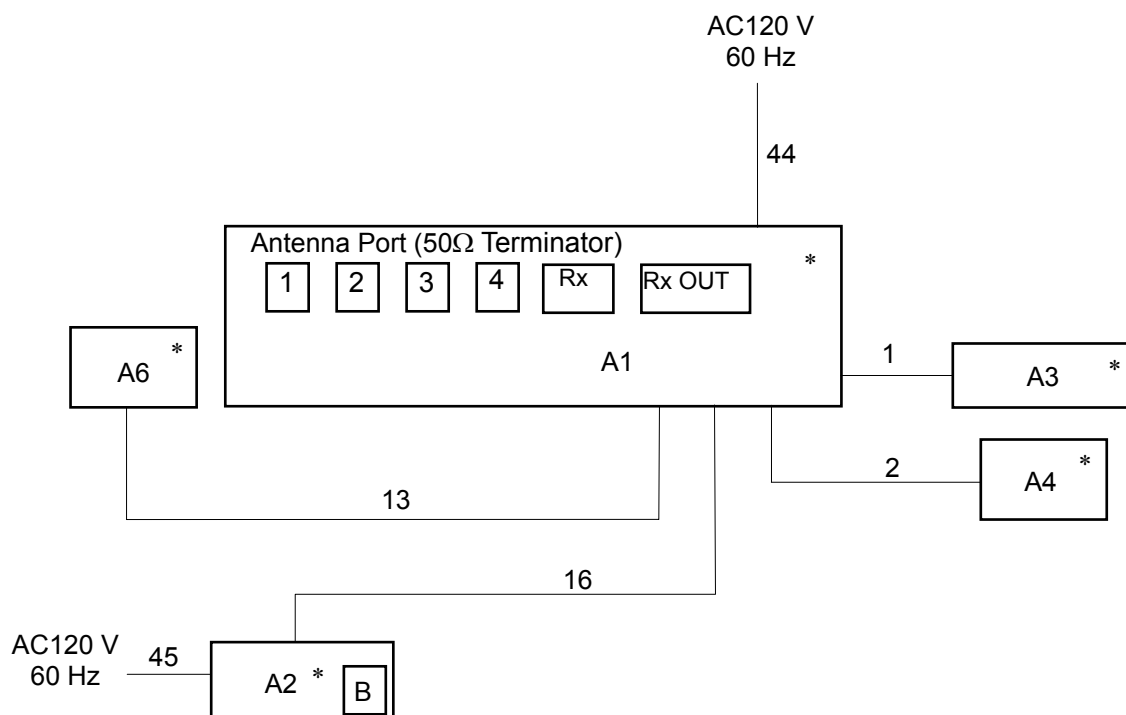
■ : Ferrite core



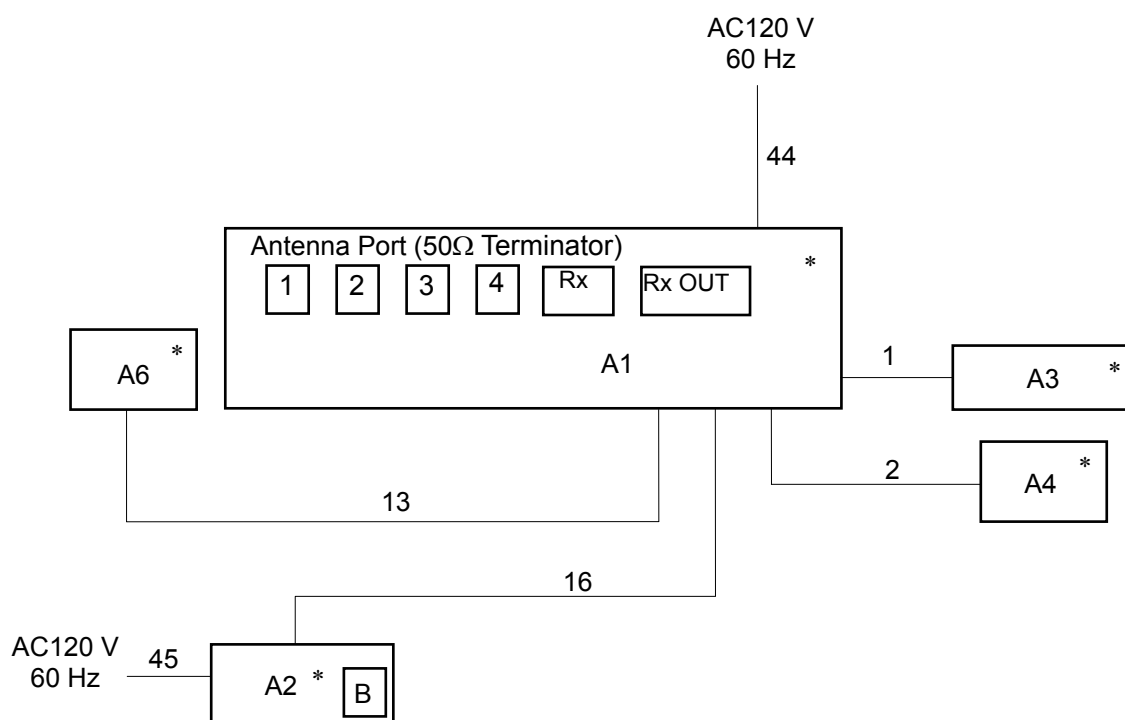
The symbols and numbers assigned to the equipments and cables on this diagram correspond to the ones in Sections 3 to 5.

6.2 Conducted Power on Antenna Port

* :EUT



6.3 38dB Rejection Test (15.121(b))



The symbols and numbers assigned to the equipments and cables on this diagram correspond to the ones in Sections 3 to 5.

SECTION 7. OPERATING CONDITION

The EUT was operated under the following conditions during the test.

7.1 Operating Condition

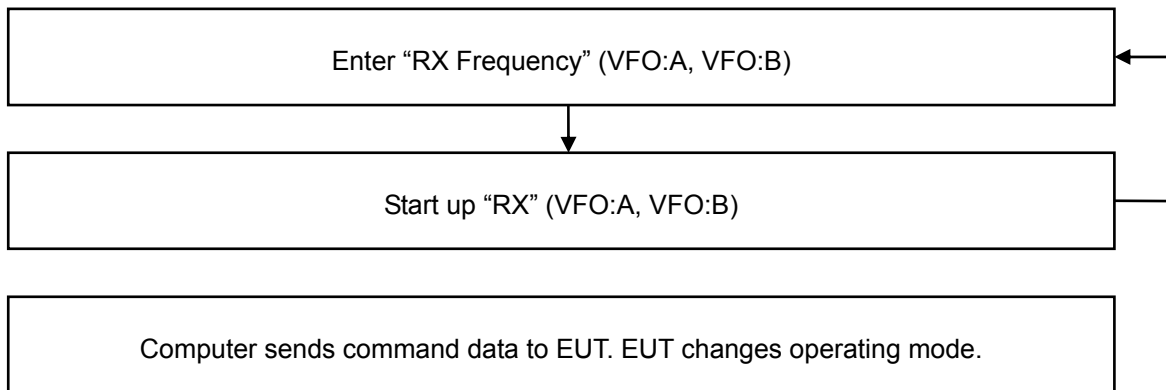
The test was carried out under RX mode and VFO SCAN mode.

EUT was examined in the operating conditions that had maximum emissions.

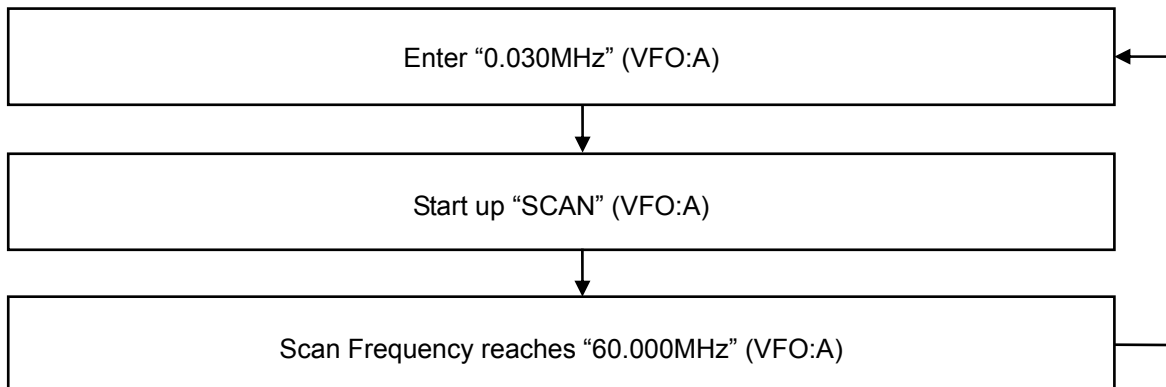
7.2 Operating Flow [RX mode and VFO SCAN mode]

Following operations were performed continuously.

7.2.1 RX mode



7.2.2 VFO SCAN mode



Radiated disturbance

Test setup as per standard

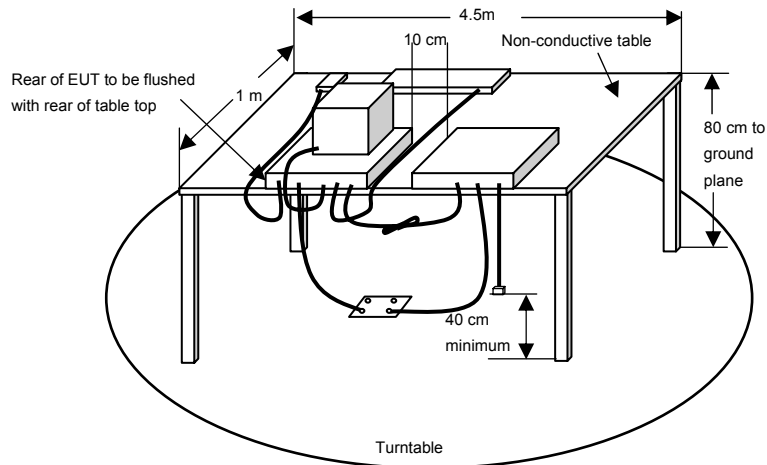
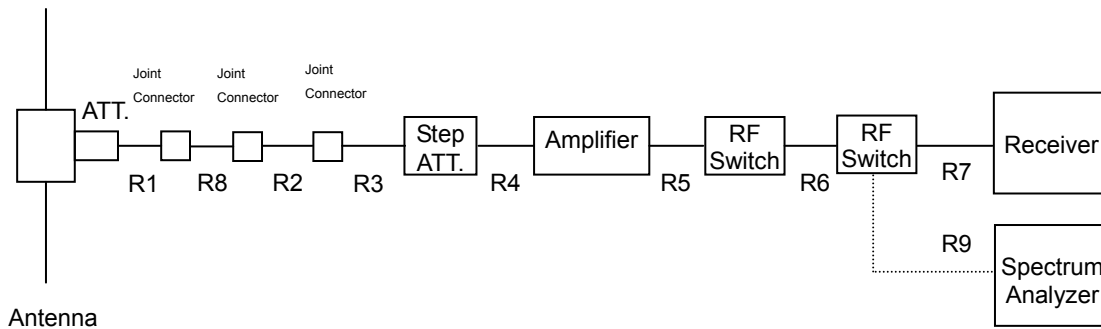
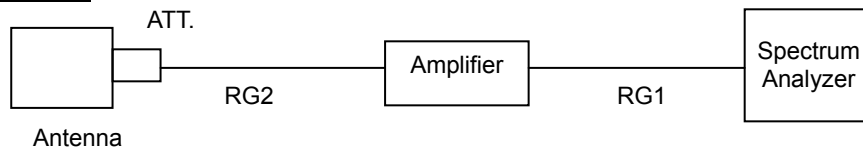


Diagram of the measuring instruments (30-1000MHz)



Above 1GHz



Setting for the instruments

Frequency [MHz]	Instrument	Detector Function	Resolution Bandwidth	Video Bandwidth
30 – 1000	Receiver	Quasi Peak	120 kHz	N/A
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
		Average	1 MHz	10 Hz

[Preliminary Measurement]

EUT is tested on all operating conditions.

The spectrum analyzer is set max-hold mode and swept during turntable was rotated 0 to 360 degree. Then spectrum chart is plotted out to find the worst emission conditions in configuration, operating mode, or ambient noise notation.

[Final Measurement]

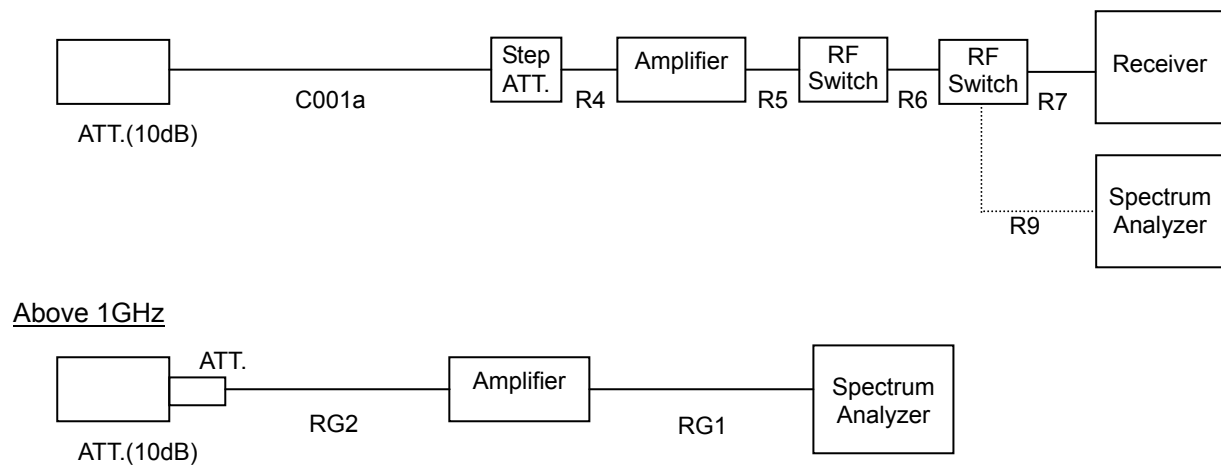
The EUT operated in the worst emission condition found by the preliminary test.

The turntable azimuth (EUT direction) and antenna height (1 to 4 meters) are adjusted the position so that maximum field strength is obtained for each frequency spectrum to be measured.

The equipment and cables are arranged or manipulated within the range of the test standard in the above condition. At least six highest spectrum are measured by the test receiver (quasi-peak) and spectrum analyzer (peak and average). When the uncertain result was obtained, the measurement is retried by using the half wave dipole antenna instead of the broadband antenna.

Conducted Power on Antenna port (15.111)

Schema for the conducted power on antenna port measurement



[Instrument Setup]

Frequency [MHz]	Instrument	Detector Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	Receiver	Quasi Peak	120 kHz	N.A.
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz

[Preliminary Measurement]

EUT is tested on all operating conditions.

The spectrum analyzer is controlled by the computer program to sweep the frequency range to be measured, then spectrum chart are plotted out to find the worst emission conditions in operating mode and/or configuration decision for the final test.

[Final Measurement]

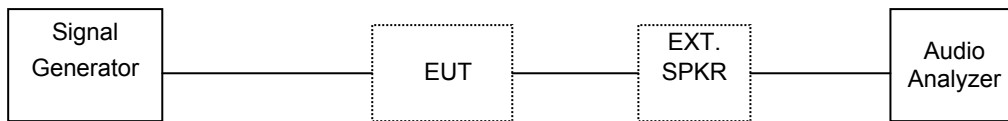
The EUT is operated in the worst emission condition found by the preliminary test.

The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.

At least six highest spectrum are measured by the test receiver (quasi-peak) and spectrum analyzer (peak).

38dB Rejection

Schema for the 38dB rejection measurement



[Preliminary Measurement]

The Signal Generator conditions :

Output level = 66 dBuV.

Modulation = Frequency modulated to 1 kHz tone at 3 kHz peak deviation.

Frequency Points = 824.040 MHz, 836.505 MHz, 848.970 MHz
869.040 MHz, 881.505 MHz, 893.970 MHz

(The Cellular Radiotelephone Service mobile and base frequency bands)

The EUT condition :

Scanning Frequency = 0.030 MHz – 60.000 MHz (1 kHz Step).

Scan stopped point, was the detected frequency.

[Final Measurement]

Injected 12dB SINAD Reading (SG RF Output)

The EUT condition :

Frequency = Scan stopped point

The Signal Generator condition :

Frequency = Cellular point

Detected 12dB SINAD Reading (SG RF Output)

The EUT condition :

Frequency = Scan stopped point

The Signal Generator condition :

Frequency = Scan stopped point

Under the requirements of Section 15.121(b) of the Rule.

Injected 12dB SINAD Reading – Detected 12dB SINAD Reading = 38 dB or more.

SECTION 9. MEASUREMENT UNCERTAINTY

Radiated disturbance at 3m	U_{lab}	U_{cisp}
30 MHz – 1000 MHz Above 1 GHz (ANSI)	+/- 3.6 dB +/- 4.2 dB	5.2 dB
Radiated disturbance at 10m		
30 MHz – 1000 MHz Above 1 GHz (ANSI)	+/- 3.7 dB +/- 4.2 dB	5.1 dB
Radiated disturbance at 30m		
	N/A	5.2 dB
Conducted disturbance at mains terminals		
9 kHz - 150 kHz 150 kHz - 30 MHz	+/- 2.7 dB	4.0 dB 3.6 dB
Conducted disturbance at telecommunication ports (voltage)		
9 kHz – 30 MHz	+/- 2.7 dB	Nil
Conducted disturbance at telecommunication ports (current)		
9 kHz – 30 MHz	+/- 2.8 dB	Nil
Conducted disturbance at terminals		
150 kHz – 30 MHz	+/- 2.7 dB	Nil
Disturbance power		
30 MHz – 300 MHz	+/- 2.9 dB	4.5 dB
Conducted Power on Antenna Port		
30 MHz – 1000 MHz Above 1 GHz	+/- 2.8 dB +/- 1.6 dB	Nil
38dB Rejection		
30 kHz – 60 MHz	+/- 0.56 dB	Nil

The above expanded instrumentation uncertainty, U_{lab} , is estimated in accordance with CISPR 16-4-2. Traceability to national standard in SI units is ensured with these values. Compliance with the limits in this standard are determined without in consideration of the measurement uncertainty of the measurement instrumentation.

SECTION 10. EVALUATION OF TEST RESULTS

10.1 Conducted disturbance at mains terminals

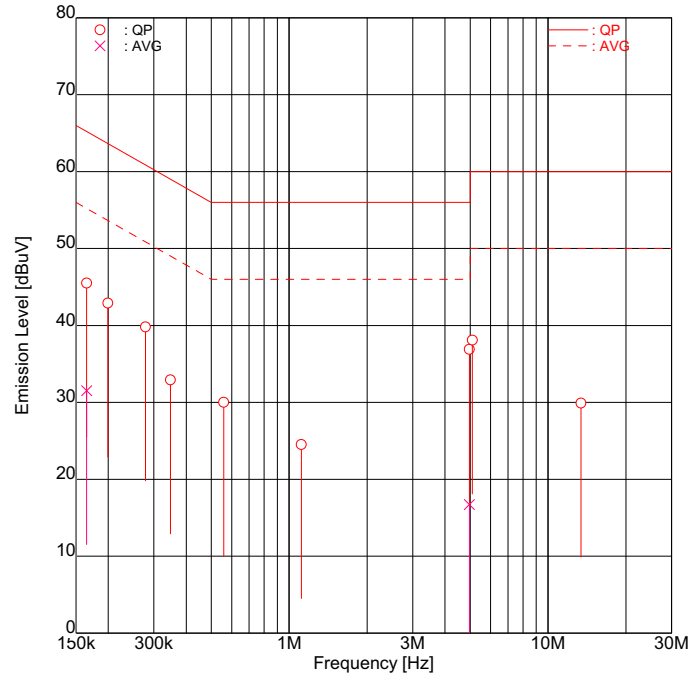
10.1.1 Rx A:B:0.030MHz (ANT 1) (Power Line for FT DX 5000)

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Voltages on Mains Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:0.030MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 12 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 26.0 [degC]
HUMIDITY : 45.0 [%]
NOTE : Power Line for FT DX 5000



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	MODE	FREQ [MHz]	READING [dBuV]		FACTOR [dB]		EMISSION [dBuV]		LIMIT [dBuV]	MARGIN [dB]	
			Line1	Line2	Line1	Line2	Line1	Line2		Line1	Line2
1	QP	0.1651	35.0	<u>35.1</u>	10.4	10.4	45.4	<u>45.5</u>	65.2	19.8	<u>19.7</u>
2	AVG	0.1651	<u>21.1</u>	21.1	10.4	10.4	<u>31.5</u>	31.5	55.2	<u>23.7</u>	23.7
3	QP	0.1993	<u>32.5</u>	32.3	10.4	10.4	<u>42.9</u>	42.7	63.6	<u>20.7</u>	20.9
4	QP	0.2784	24.6	<u>29.4</u>	10.4	10.4	35.0	<u>39.8</u>	60.9	<u>25.9</u>	<u>21.1</u>
5	QP	0.3479	22.4	<u>22.5</u>	10.4	10.4	32.8	<u>32.9</u>	59.0	<u>26.2</u>	<u>26.1</u>
6	QP	0.5587	17.6	<u>19.6</u>	10.4	10.4	28.0	<u>30.0</u>	56.0	<u>28.0</u>	<u>26.0</u>
7	QP	1.1142	14.1	<u>12.4</u>	10.4	10.4	24.5	<u>22.8</u>	56.0	<u>31.5</u>	<u>33.2</u>
8	QP	4.9690	24.3	<u>26.2</u>	10.7	10.7	35.0	<u>36.9</u>	56.0	<u>21.0</u>	<u>19.1</u>
9	AVG	4.9690	5.6	<u>6.0</u>	10.7	10.7	16.3	<u>16.7</u>	46.0	<u>29.7</u>	<u>29.3</u>
10	QP	5.1043	25.7	<u>27.4</u>	10.7	10.7	36.4	<u>38.1</u>	60.0	<u>23.6</u>	<u>21.9</u>
11	QP	13.4155	18.9	<u>16.7</u>	11.0	11.1	29.9	<u>27.8</u>	60.0	<u>30.1</u>	<u>32.2</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B Class B limit
Emission Level = Read + Factor(LISN,Pad,Cable)

emiT 3, 0, 0, 0

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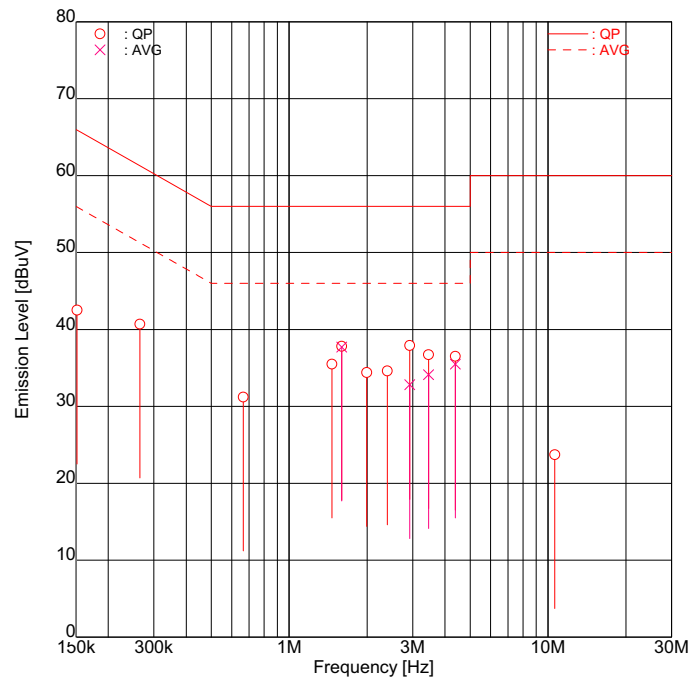
10.1.2 Rx A:B:0.030MHz (ANT 1) (Power Line for DMU-2000)

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Voltages on Mains Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:0.030MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 12 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 26.0 [degC]
HUMIDITY : 45.0 [%]
NOTE : Power Line for DMU-2000



ENGINEER : Atsuyuki Morishima

[No]	FREQUENCY [MHz]	MODE	READING [dBuV]		FACTOR [dB]		EMISSION [dBuV]		LIMIT [dBuV]	MARGIN [dB]	
			Line1	Line2	Line1	Line2	Line1	Line2		Line1	Line2
1	0.1514	QP	32.1	32.0	10.4	10.4	42.5	42.4	65.9	23.4	23.5
2	0.2648	QP	28.4	30.3	10.4	10.4	38.8	40.7	61.3	22.5	20.6
3	0.6645	QP	20.8	16.0	10.4	10.4	31.2	26.4	56.0	24.8	29.6
4	1.4621	QP	25.1	21.1	10.4	10.4	35.5	31.5	56.0	20.5	24.5
5	1.5949	QP	<u>27.4</u>	20.4	10.4	10.4	<u>37.8</u>	30.8	56.0	<u>18.2</u>	25.2
6	1.5949	AVG	<u>27.3</u>	19.6	10.4	10.4	<u>37.7</u>	30.0	46.0	<u>8.3</u>	16.0
7	1.9930	QP	24.0	8.7	10.4	10.4	34.4	19.1	56.0	21.6	36.9
8	2.3927	QP	24.1	19.4	10.5	10.5	34.6	29.9	56.0	21.4	26.1
9	2.9235	QP	24.4	<u>27.4</u>	10.5	10.5	34.9	<u>37.9</u>	56.0	21.1	<u>18.1</u>
10	2.9235	AVG	<u>22.3</u>	17.2	10.5	10.5	<u>32.8</u>	27.7	46.0	<u>13.2</u>	18.3
11	3.4557	QP	26.0	20.7	10.7	10.7	36.7	31.4	56.0	19.3	24.6
12	3.4557	AVG	<u>23.4</u>	16.4	10.7	10.7	<u>34.1</u>	27.1	46.0	<u>11.9</u>	18.9
13	4.3860	QP	25.3	25.8	10.7	10.7	36.0	36.5	56.0	20.0	19.5
14	4.3860	AVG	23.4	<u>24.8</u>	10.7	10.7	34.1	<u>35.5</u>	46.0	11.9	<u>10.5</u>
15	10.6232	QP	10.6	12.7	11.0	11.0	21.6	23.7	60.0	38.4	36.3

Higher six points are underlined.

Other frequencies : Below the FCC Part15B Class B limit

Emission Level = Read + Factor(LISN,Pad,Cable)

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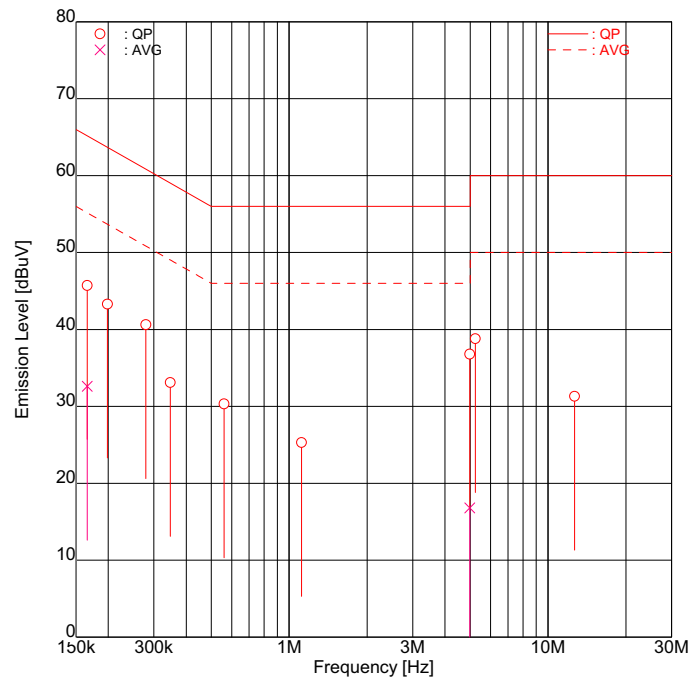
10.1.3 Rx A:B:30.000MHz (ANT 1) (Power Line for FT DX 5000)

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Voltages on Mains Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:30.000MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 12 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 26.0 [degC]
HUMIDITY : 45.0 [%]
NOTE : Power Line for FT DX5000



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	MODE	FREQ [MHz]	READING [dBuV]		FACTOR [dB]		EMISSION [dBuV]		LIMIT [dBuV]	MARGIN [dB]	
			Line1	Line2	Line1	Line2	Line1	Line2		Line1	Line2
1	0.1659	QP	<u>35.3</u>	35.3	10.4	10.4	<u>45.7</u>	45.7	65.2	<u>19.5</u>	19.5
2	0.1659	AVG	<u>22.2</u>	22.1	10.4	10.4	<u>32.6</u>	32.5	55.2	<u>22.6</u>	22.7
3	0.1985	QP	<u>32.7</u>	<u>32.9</u>	10.4	10.4	<u>43.1</u>	<u>43.3</u>	63.7	<u>20.6</u>	<u>20.4</u>
4	0.2795	QP	<u>25.3</u>	<u>30.2</u>	10.4	10.4	<u>35.7</u>	<u>40.6</u>	60.8	<u>25.1</u>	<u>20.2</u>
5	0.3473	QP	<u>22.7</u>	<u>22.7</u>	10.4	10.4	<u>33.1</u>	<u>33.1</u>	59.0	<u>25.9</u>	<u>25.9</u>
6	0.5599	QP	<u>17.8</u>	<u>19.9</u>	10.4	10.4	<u>28.2</u>	<u>30.3</u>	56.0	<u>27.8</u>	<u>25.7</u>
7	1.1150	QP	<u>14.9</u>	<u>12.9</u>	10.4	10.4	<u>25.3</u>	<u>23.3</u>	56.0	<u>30.7</u>	<u>32.7</u>
8	4.9815	QP	<u>25.0</u>	<u>26.1</u>	10.7	10.7	<u>35.7</u>	<u>36.8</u>	56.0	<u>20.3</u>	<u>19.2</u>
9	4.9815	AVG	<u>5.6</u>	<u>6.1</u>	10.7	10.7	<u>16.3</u>	<u>16.8</u>	46.0	<u>29.7</u>	<u>29.2</u>
10	5.2392	QP	<u>26.4</u>	<u>28.1</u>	10.7	10.7	<u>37.1</u>	<u>38.8</u>	60.0	<u>22.9</u>	<u>21.2</u>
11	12.6600	QP	<u>20.3</u>	<u>19.3</u>	11.0	11.1	<u>31.3</u>	<u>30.4</u>	60.0	<u>28.7</u>	<u>29.6</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B Class B limit
Emission Level = Read + Factor(LISN,Pad,Cable)

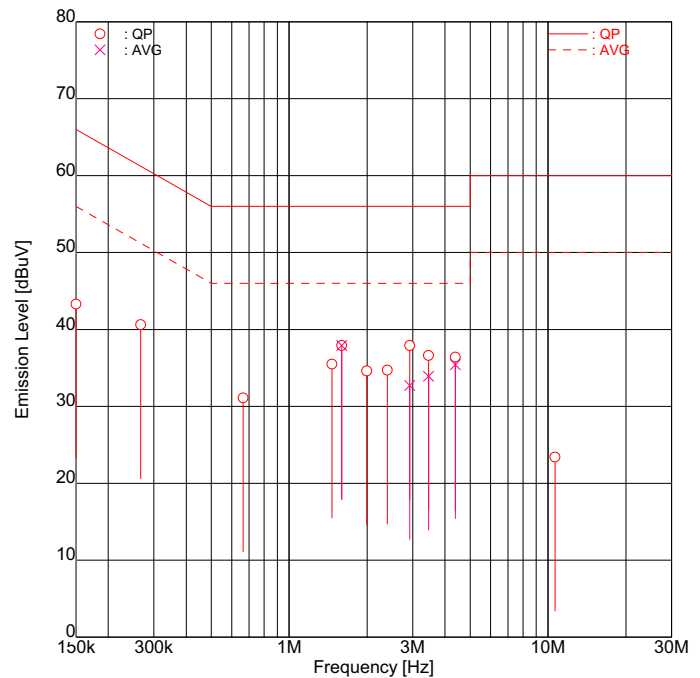
10.1.4 Rx A:B:30.000MHz (ANT 1) (Power Line for DMU-2000)

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Voltages on Mains Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:30.000MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 12 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 26.0 [degC]
HUMIDITY : 45.0 [%]
NOTE : Power Line for DMU-2000



ENGINEER : Atsuyuki Morishima

[No]	FREQUENCY [MHz]	MODE	READING [dBuV]		FACTOR [dB]		EMISSION [dBuV]		LIMIT [dBuV]	MARGIN [dB]	
			Line1	Line2	Line1	Line2	Line1	Line2		Line1	Line2
1	0.1500	QP	32.9	32.2	10.4	10.4	43.3	42.6	66.0	22.7	23.4
2	0.2667	QP	28.4	30.2	10.4	10.4	38.8	40.6	61.2	22.4	20.6
3	0.6640	QP	20.7	15.4	10.4	10.4	31.1	25.8	56.0	24.9	30.2
4	1.4612	QP	25.1	21.1	10.4	10.4	35.5	31.5	56.0	20.5	24.5
5	1.5945	QP	<u>27.5</u>	20.3	10.4	10.4	<u>37.9</u>	30.7	56.0	<u>18.1</u>	25.3
6	1.5945	AVG	<u>27.5</u>	19.7	10.4	10.4	<u>37.9</u>	30.1	46.0	<u>8.1</u>	15.9
7	1.9940	QP	24.2	8.6	10.4	10.4	34.6	19.0	56.0	21.4	37.0
8	2.3928	QP	24.2	19.3	10.5	10.5	34.7	29.8	56.0	21.3	26.2
9	2.9232	QP	24.4	<u>27.4</u>	10.5	10.5	34.9	<u>37.9</u>	56.0	21.1	<u>18.1</u>
10	2.9232	AVG	<u>22.2</u>	17.2	10.5	10.5	<u>32.7</u>	27.7	46.0	<u>13.3</u>	18.3
11	3.4551	QP	25.9	20.7	10.7	10.7	36.6	31.4	56.0	19.4	24.6
12	3.4551	AVG	<u>23.2</u>	16.3	10.7	10.7	<u>33.9</u>	27.0	46.0	<u>12.1</u>	19.0
13	4.3857	QP	25.2	25.7	10.7	10.7	35.9	36.4	56.0	20.1	19.6
14	4.3857	AVG	23.4	<u>24.7</u>	10.7	10.7	34.1	<u>35.4</u>	46.0	11.9	<u>10.6</u>
15	10.6303	QP	10.2	12.4	11.0	11.0	21.2	23.4	60.0	38.8	36.6

Higher six points are underlined.

Other frequencies : Below the FCC Part15B Class B limit

Emission Level = Read + Factor(LISN,Pad,Cable)

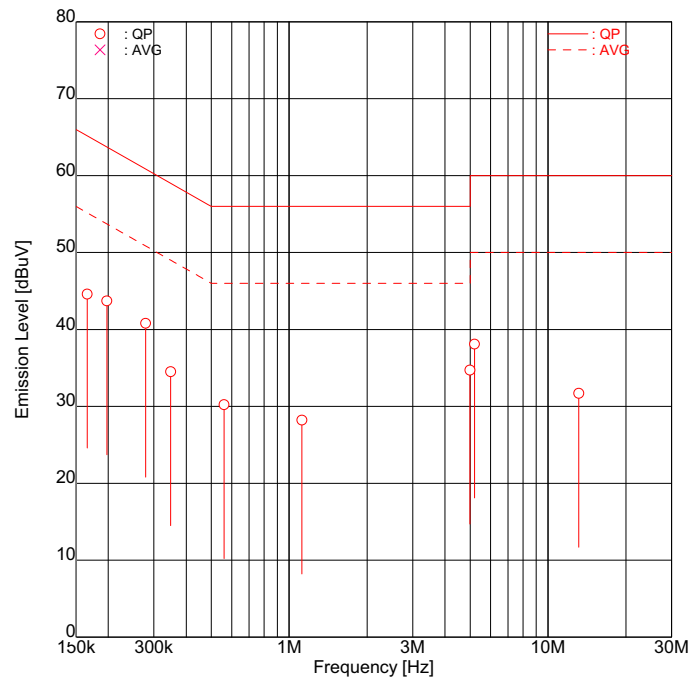
10.1.5 Rx A:B:60.000MHz (ANT 1) (Power Line for FT DX 5000)

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Voltages on Mains Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:60.000MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 12 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 26.0 [degC]
HUMIDITY : 45.0 [%]
NOTE : Power Line for FT DX5000



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	MODE [MHz]		READING [dBuV]		FACTOR [dB]		EMISSION [dBuV]		LIMIT [dBuV]	MARGIN [dB]	
			Line1	Line2	Line1	Line2	Line1	Line2		Line1	Line2
1	0.1659	QP	<u>34.2</u>	34.2	10.4	10.4	<u>44.6</u>	44.6	65.2	<u>20.6</u>	20.6
2	0.1973	QP	<u>33.1</u>	<u>33.3</u>	10.4	10.4	<u>43.5</u>	<u>43.7</u>	63.7	20.2	20.0
3	0.2788	QP	<u>25.7</u>	<u>30.4</u>	10.4	10.4	<u>36.1</u>	<u>40.8</u>	60.9	24.8	<u>20.1</u>
4	0.3485	QP	<u>23.2</u>	<u>24.1</u>	10.4	10.4	<u>33.6</u>	<u>34.5</u>	59.0	25.4	<u>24.5</u>
5	0.5602	QP	<u>18.1</u>	<u>19.8</u>	10.4	10.4	<u>28.5</u>	<u>30.2</u>	56.0	27.5	25.8
6	1.1199	QP	<u>17.8</u>	<u>15.8</u>	10.4	10.4	<u>28.2</u>	<u>26.2</u>	56.0	27.8	29.8
7	5.1989	QP	<u>25.8</u>	<u>27.4</u>	10.7	10.7	<u>36.5</u>	<u>38.1</u>	60.0	23.5	<u>21.9</u>
8	4.9960	QP	<u>22.5</u>	<u>24.0</u>	10.7	10.7	<u>33.2</u>	<u>34.7</u>	56.0	22.8	<u>21.3</u>
9	13.1525	QP	<u>20.7</u>	<u>19.3</u>	11.0	11.1	<u>31.7</u>	<u>30.4</u>	60.0	28.3	29.6

Higher six points are underlined.

Other frequencies : Below the FCC Part15B Class B limit

Emission Level = Read + Factor(LISN,Pad,Cable)

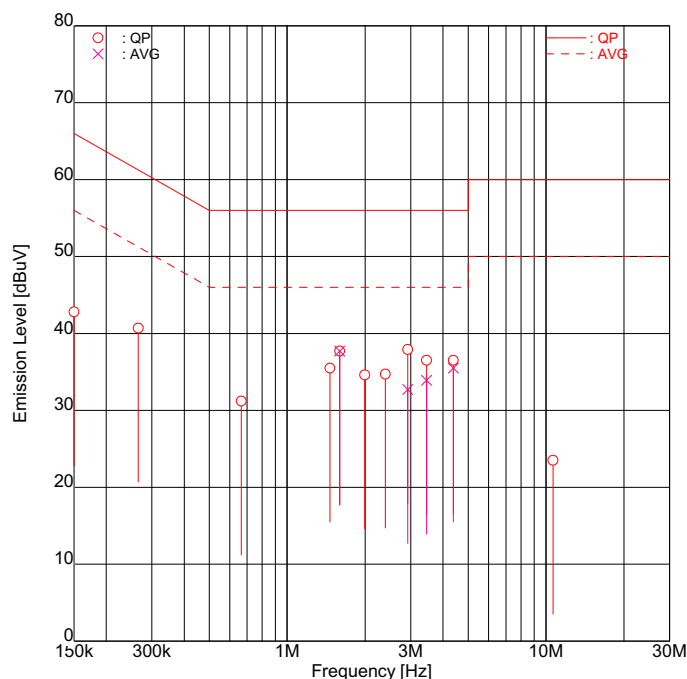
10.1.6 Rx A:B:60.000MHz (ANT 1) (Power Line for DMU-2000)

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Voltages on Mains Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:60.000MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 12 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 26.0 [degC]
HUMIDITY : 45.0 [%]
NOTE : Power Line for DMU-2000



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	MODE [MHz]		READING [dBuV]		FACTOR [dB]		EMISSION [dBuV]		LIMIT [dBuV]	MARGIN [dB]	
			Line1	Line2	Line1	Line2	Line1	Line2		Line1	Line2
1	0.1500	QP	32.4	32.3	10.4	10.4	42.8	42.7	66.0	23.2	23.3
2	0.2658	QP	28.5	30.3	10.4	10.4	38.9	40.7	61.2	22.3	20.5
3	0.6652	QP	20.8	15.6	10.4	10.4	31.2	26.0	56.0	24.8	30.0
4	1.4621	QP	25.1	21.1	10.4	10.4	35.5	31.5	56.0	20.5	24.5
5	1.5946	QP	<u>27.3</u>	20.3	10.4	10.4	<u>37.7</u>	30.7	56.0	<u>18.3</u>	25.3
6	1.5946	AVG	<u>27.3</u>	19.6	10.4	10.4	<u>37.7</u>	30.0	46.0	<u>8.3</u>	16.0
7	1.9932	QP	24.2	8.6	10.4	10.4	34.6	19.0	56.0	21.4	37.0
8	2.3928	QP	24.2	19.4	10.5	10.5	34.7	29.9	56.0	21.3	26.1
9	2.9237	QP	24.5	<u>27.4</u>	10.5	10.5	35.0	<u>37.9</u>	56.0	21.0	<u>18.1</u>
10	2.9237	AVG	<u>22.2</u>	17.2	10.5	10.5	<u>32.7</u>	27.7	46.0	<u>13.3</u>	18.3
11	3.4554	QP	25.8	20.7	10.7	10.7	36.5	31.4	56.0	19.5	24.6
12	3.4554	AVG	<u>23.2</u>	16.3	10.7	10.7	<u>33.9</u>	27.0	46.0	<u>12.1</u>	19.0
13	4.3861	QP	25.3	25.8	10.7	10.7	36.0	36.5	56.0	20.0	19.5
14	4.3861	AVG	23.5	<u>24.8</u>	10.7	10.7	34.2	<u>35.5</u>	46.0	11.8	<u>10.5</u>
15	10.6310	QP	10.2	12.5	11.0	11.0	21.2	23.5	60.0	38.8	36.5

Higher six points are underlined.
Other frequencies : Below the FCC Part15B Class B limit
Emission Level = Read + Factor(LISN,Pad,Cable)

10.2 Radiated disturbance

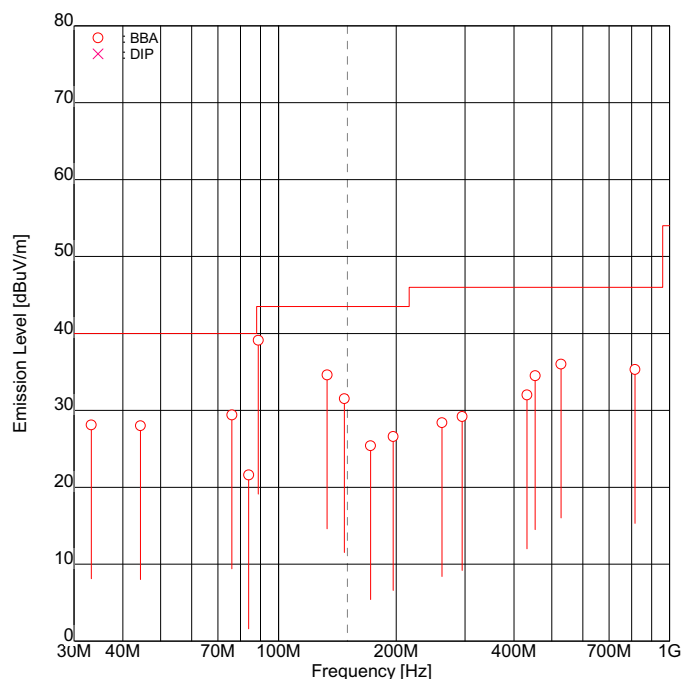
10.2.1 Rx A:B:0.030MHz (ANT 1) [30 – 1000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Radiated Electric Field

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:0.030MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 10 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
DISTANCE : 3.00 [m]
TEMPERATURE : 21.0 [degC]
HUMIDITY : 64.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQ [MHz]	ANT.	READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	33.21	BBA	-	34.8	-6.7	-6.7	-	28.1	40.0	-	11.9
2	44.39	BBA	-	32.8	-4.8	-4.8	-	28.0	40.0	-	12.0
3	76.01	BBA	<u>36.8</u>	35.0	-7.4	-7.4	<u>29.4</u>	27.6	40.0	<u>10.6</u>	12.4
4	83.93	BBA	<u>30.6</u>	-	-9.0	-9.0	<u>21.6</u>	-	40.0	<u>18.4</u>	-
5	88.80	BBA	<u>48.8</u>	46.5	-9.7	-9.7	<u>39.1</u>	36.8	43.5	<u>4.4</u>	6.7
6	133.20	BBA	33.0	<u>39.3</u>	-4.7	-4.7	28.3	<u>34.6</u>	43.5	15.2	<u>8.9</u>
7	147.46	BBA	31.3	<u>35.2</u>	-3.7	-3.7	27.6	31.5	43.5	15.9	12.0
8	172.04	BBA	-	29.2	-3.8	-3.8	-	25.4	43.5	-	18.1
9	196.42	BBA	32.3	-	-5.7	-5.7	26.6	-	43.5	16.9	-
10	261.89	BBA	31.1	30.1	-2.7	-2.7	28.4	27.4	46.0	17.6	18.6
11	294.92	BBA	-	30.4	-1.2	-1.2	-	29.2	46.0	-	16.8
12	432.06	BBA	29.6	-	2.4	2.4	32.0	-	46.0	14.0	-
13	453.54	BBA	-	<u>31.5</u>	3.0	3.0	-	<u>34.5</u>	46.0	-	<u>11.5</u>
14	528.06	BBA	<u>31.0</u>	-	5.0	5.0	<u>36.0</u>	-	46.0	<u>10.0</u>	-
15	816.11	BBA	-	<u>24.8</u>	10.5	10.5	-	<u>35.3</u>	46.0	-	<u>10.7</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B Class B limit
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

10.2.2 Rx A:B:0.030MHz (ANT 1) [1000 – 5000MHz]

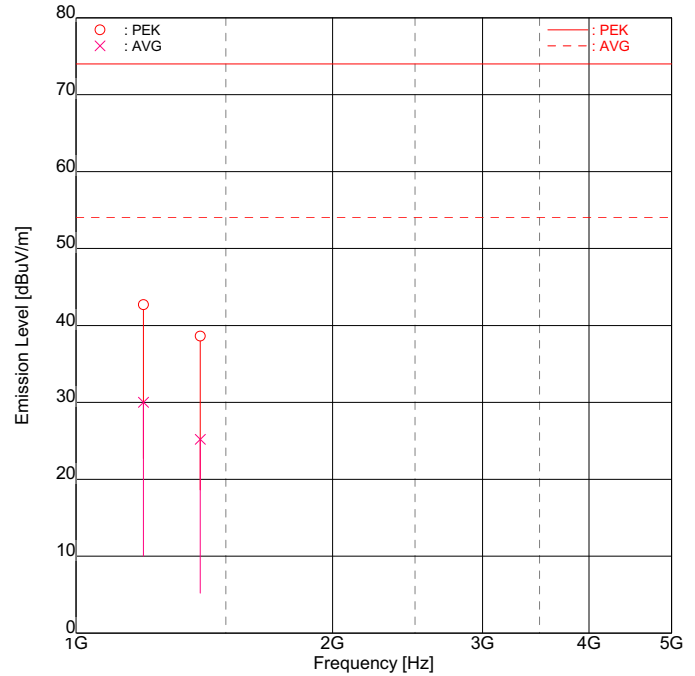
Intertek Japan K.K.

Tochigi No.2 Test Site

Radiated Electric Field

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:0.030MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 11 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
DISTANCE : 3.00 [m]
TEMPERATURE : 22.0 [degC]
HUMIDITY : 64.0 [%]
NOTE :

ENGINEER : Atsuyuki Morishima



FREQUENCY [No]	MODE	MODE	READING [dBuV]		FACTOR [dB]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	1199.87	PEK	<u>45.5</u>	40.9	-2.8	-2.8	<u>42.7</u>	38.1	74.0	<u>31.3</u>	35.9
2	1199.87	AVG	<u>32.8</u>	30.1	-2.8	-2.8	<u>30.0</u>	27.3	54.0	<u>24.0</u>	26.7
3	1399.67	PEK	<u>39.4</u>	<u>40.4</u>	-1.8	-1.8	<u>37.6</u>	<u>38.6</u>	74.0	<u>36.4</u>	<u>35.4</u>
4	1399.67	AVG	<u>26.9</u>	<u>27.0</u>	-1.8	-1.8	<u>25.1</u>	<u>25.2</u>	54.0	<u>28.9</u>	<u>28.8</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B Class B limit
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

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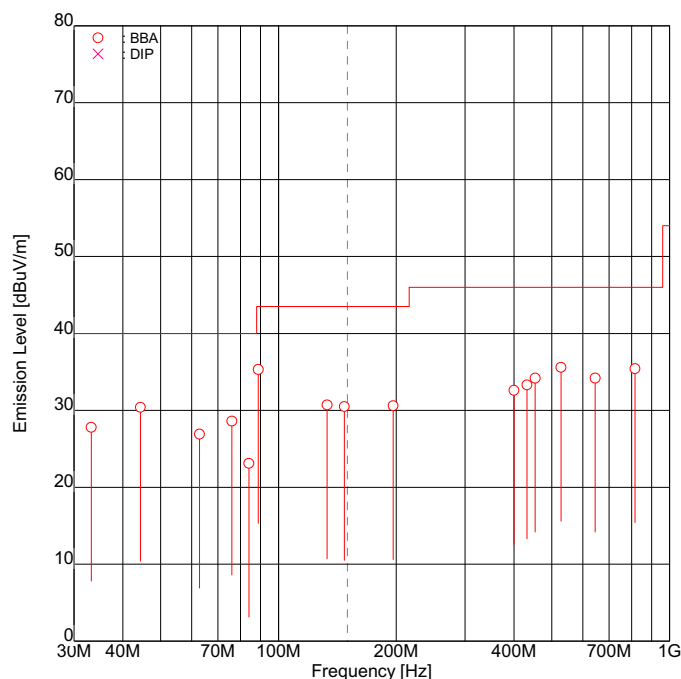
10.2.3 Rx A:B:30.000MHz (ANT 1) [30 – 1000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Radiated Electric Field

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:30.000MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 10 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
DISTANCE : 3.00 [m]
TEMPERATURE : 22.0 [degC]
HUMIDITY : 60.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQ [MHz]	ANT.	READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	33.21	BBA	-	34.5	-6.7	-6.7	-	27.8	40.0	-	12.2
2	44.40	BBA	-	<u>35.2</u>	-4.8	-4.8	-	<u>30.4</u>	40.0	-	<u>9.6</u>
3	62.84	BBA	-	31.9	-5.0	-5.0	-	26.9	40.0	-	13.1
4	76.01	BBA	<u>36.0</u>	29.6	-7.4	-7.4	<u>28.6</u>	22.2	40.0	<u>11.4</u>	17.8
5	84.02	BBA	32.1	-	-9.0	-9.0	23.1	-	40.0	16.9	-
6	88.80	BBA	<u>45.0</u>	42.6	-9.7	-9.7	<u>35.3</u>	32.9	43.5	<u>8.2</u>	10.6
7	133.20	BBA	-	35.4	-4.7	-4.7	-	30.7	43.5	-	12.8
8	147.46	BBA	31.5	34.2	-3.7	-3.7	27.8	30.5	43.5	15.7	13.0
9	196.42	BBA	36.3	-	-5.7	-5.7	30.6	-	43.5	12.9	-
10	400.00	BBA	31.0	28.5	1.6	1.6	32.6	30.1	46.0	13.4	15.9
11	432.06	BBA	30.9	-	2.4	2.4	33.3	-	46.0	12.7	-
12	453.54	BBA	-	<u>31.2</u>	3.0	3.0	-	<u>34.2</u>	46.0	-	<u>11.8</u>
13	528.06	BBA	<u>30.6</u>	-	5.0	5.0	<u>35.6</u>	-	46.0	<u>10.4</u>	-
14	645.26	BBA	<u>27.1</u>	-	7.1	7.1	<u>34.2</u>	-	46.0	<u>11.8</u>	-
15	816.11	BBA	-	<u>24.9</u>	10.5	10.5	-	<u>35.4</u>	46.0	-	<u>10.6</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B Class B limit
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

emiT 3, 0, 0, 0

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10.2.4 Rx A:B:30.000MHz (ANT 1) [1000 – 5000MHz]

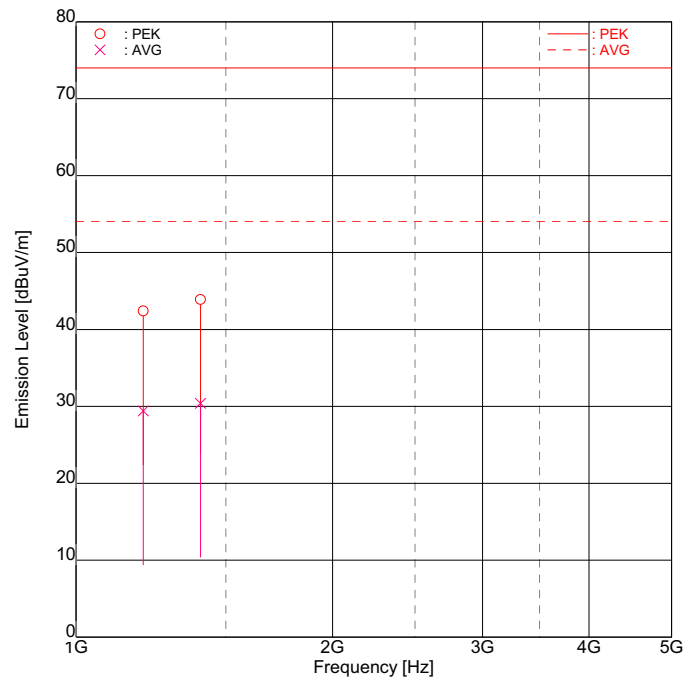
Intertek Japan K.K.

Tochigi No.2 Test Site

Radiated Electric Field

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:30.000MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 11 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
DISTANCE : 3.00 [m]
TEMPERATURE : 22.2 [degC]
HUMIDITY : 65.0 [%]
NOTE :

ENGINEER : Atsuyuki Morishima



FREQUENCY [No]	MODE	READING [dBuV]	Hori		Vert		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	1199.80 PEK	<u>45.2</u>		45.0	-2.8	-2.8	<u>42.4</u>	42.2	74.0	<u>31.6</u>	31.8
2	1199.80 AVG	31.7		<u>32.2</u>	-2.8	-2.8	28.9	<u>29.4</u>	54.0	25.1	<u>24.6</u>
3	1399.78 PEK	<u>45.7</u>		45.5	-1.8	-1.8	<u>43.9</u>	43.7	74.0	<u>30.1</u>	30.3
4	1399.78 AVG	31.7		<u>32.2</u>	-1.8	-1.8	29.9	<u>30.4</u>	54.0	24.1	<u>23.6</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B Class B limit
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

emiT 3, 0, 0, 0

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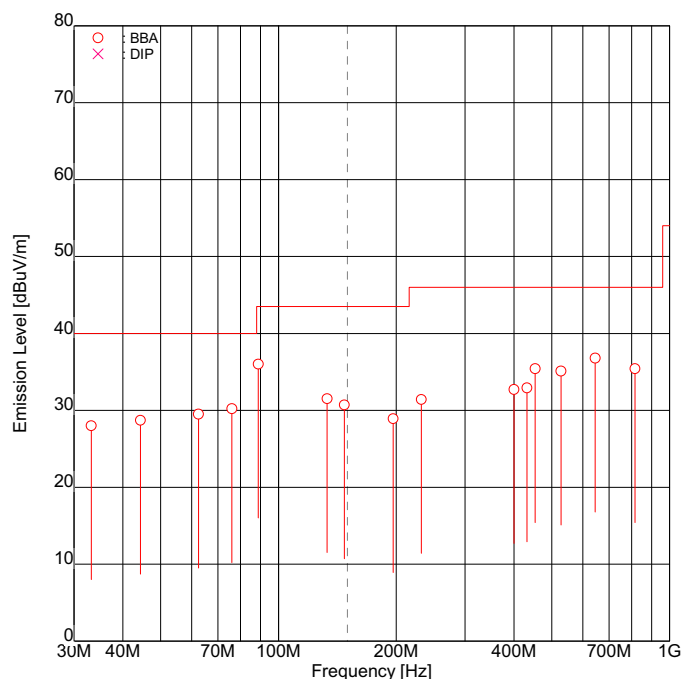
10.2.5 Rx A:B:60.000MHz (ANT 1) [30 – 1000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Radiated Electric Field

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:60.000MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 10 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
DISTANCE : 3.00 [m]
TEMPERATURE : 22.0 [degC]
HUMIDITY : 60.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQ [MHz]	ANT.	READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	33.22	BBA	-	34.7	-6.7	-6.7	-	28.0	40.0	-	12.0
2	44.40	BBA	-	33.5	-4.8	-4.8	-	28.7	40.0	-	11.3
3	62.44	BBA	-	<u>34.5</u>	-5.0	-5.0	-	<u>29.5</u>	40.0	-	<u>10.5</u>
4	76.06	BBA	34.8	<u>37.6</u>	-7.4	-7.4	27.4	<u>30.2</u>	40.0	12.6	<u>9.8</u>
5	88.80	BBA	<u>45.7</u>	42.1	-9.7	-9.7	<u>36.0</u>	32.4	43.5	<u>7.5</u>	11.1
6	133.20	BBA	-	36.2	-4.7	-4.7	-	31.5	43.5	-	12.0
7	147.46	BBA	32.7	34.4	-3.7	-3.7	29.0	30.7	43.5	14.5	12.8
8	196.42	BBA	34.6	31.7	-5.7	-5.7	28.9	26.0	43.5	14.6	17.5
9	231.99	BBA	-	35.6	-4.2	-4.2	-	31.4	46.0	-	14.6
10	400.00	BBA	31.1	29.2	1.6	1.6	32.7	30.8	46.0	13.3	15.2
11	432.06	BBA	30.5	26.5	2.4	2.4	32.9	28.9	46.0	13.1	17.1
12	453.54	BBA	-	<u>32.4</u>	3.0	3.0	-	<u>35.4</u>	46.0	-	<u>10.6</u>
13	528.06	BBA	30.1	-	5.0	5.0	35.1	-	46.0	10.9	-
14	645.26	BBA	<u>29.7</u>	-	7.1	7.1	<u>36.8</u>	-	46.0	<u>9.2</u>	-
15	816.11	BBA	-	<u>24.9</u>	10.5	10.5	-	<u>35.4</u>	46.0	-	<u>10.6</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B Class B limit
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

emiT 3, 0, 0, 0

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10.2.6 Rx A:B:60.000MHz (ANT 1) [1000 – 5000MHz]

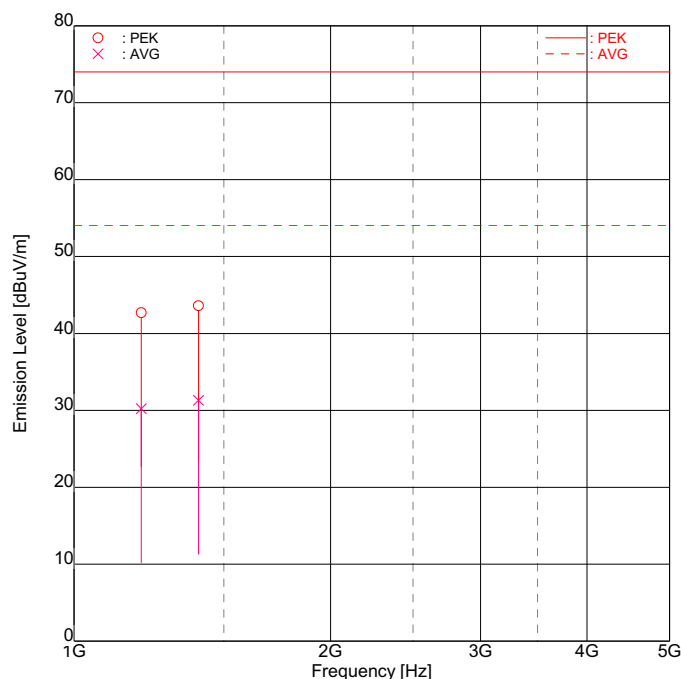
Intertek Japan K.K.

Tochigi No.2 Test Site

Radiated Electric Field

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:60.000MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 11 2009
FILE NO. : JT091110005
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-2003
DISTANCE : 3.00 [m]
TEMPERATURE : 22.2 [degC]
HUMIDITY : 65.0 [%]
NOTE :

ENGINEER : Atsuyuki Morishima



FREQUENCY [No]	MODE	MODE	READING [dBuV]		FACTOR [dB]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	1199.80	PEK	<u>45.5</u>	45.2	-2.8	-2.8	<u>42.7</u>	42.4	74.0	<u>31.3</u>	31.6
2	1199.80	AVG	32.1	<u>33.0</u>	-2.8	-2.8	29.3	<u>30.2</u>	54.0	24.7	23.8
3	1399.80	PEK	<u>45.4</u>	45.3	-1.8	-1.8	<u>43.6</u>	43.5	74.0	<u>30.4</u>	30.5
4	1399.80	AVG	<u>33.1</u>	32.9	-1.8	-1.8	<u>31.3</u>	31.1	54.0	<u>22.7</u>	22.9

Higher six points are underlined.
Other frequencies : Below the FCC Part15B Class B limit
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

emiT 3, 0, 0, 0

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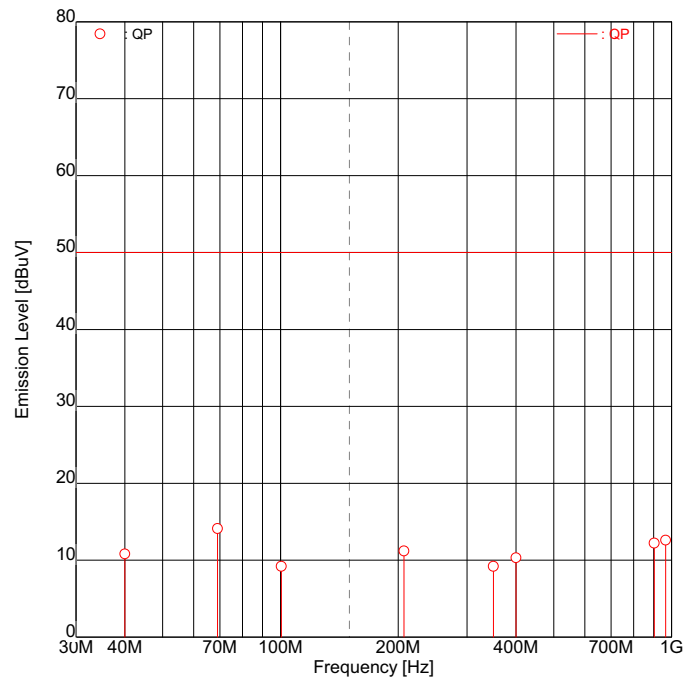
10.3 Conducted Power on Antenna Port (15.111)
10.3.1 Rx A:B:60.000MHz (ANT 1) [30 – 1000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Power for Antenna Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:60.000MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 13 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B (15.111)
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 22.0 [degC]
HUMIDITY : 45.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQUENCY [MHz]	READING [dBuV]	FACTOR [dB]	EMISSION [dBuV]	LIMIT [dBuV]	MARGIN [dB]
1	40.0000	<u>26.0</u>	-15.2	<u>10.8</u>	50.0	<u>39.2</u>
2	69.0030	<u>28.8</u>	-14.7	<u>14.1</u>	50.0	<u>35.9</u>
3	100.4560	<u>23.4</u>	-14.2	<u>9.2</u>	50.0	<u>40.8</u>
4	207.0000	<u>24.0</u>	-12.8	<u>11.2</u>	50.0	<u>38.8</u>
5	350.2080	<u>21.3</u>	-12.1	<u>9.2</u>	50.0	<u>40.8</u>
6	400.0000	<u>22.5</u>	-12.2	<u>10.3</u>	50.0	<u>39.7</u>
7	903.1700	<u>22.4</u>	-10.2	<u>12.2</u>	50.0	<u>37.8</u>
8	966.0200	<u>22.5</u>	-9.9	<u>12.6</u>	50.0	<u>37.4</u>

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor(Pad,Cable,Preamp)

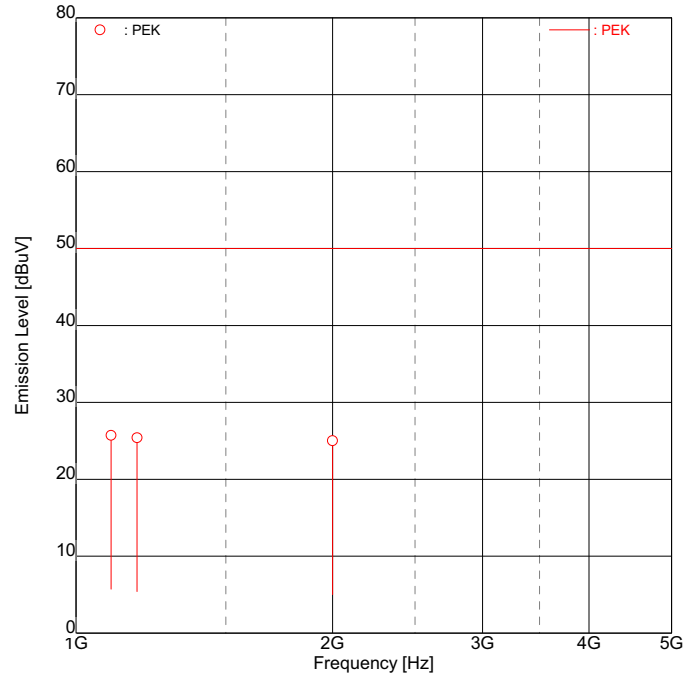
10.3.2 Rx A:B:60.000MHz (ANT 1) [1000 – 5000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Power for Antenna Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx 60.000MHz (ANT 1)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 12 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B (15.111)
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 20.0 [degC]
HUMIDITY : 59.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQUENCY [MHz]	READING [dBuV]	FACTOR [dB]	EMISSION [dBuV]	LIMIT [dBuV]	MARGIN [dB]
1	1099.5800	<u>46.7</u>	-21.0	<u>25.7</u>	50.0	<u>24.3</u>
2	1179.8750	<u>46.2</u>	-20.8	<u>25.4</u>	50.0	<u>24.6</u>
3	2000.0000	<u>44.4</u>	-19.4	<u>25.0</u>	50.0	<u>25.0</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B (15.111) limit
Emission Level = Read + Factor(Pad,Cable,Preamp)

emiT 3, 0, 0, 0

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10.3.3 VFO SCAN (ANT 1) [30 – 1000MHz]

< Graph number #31 >

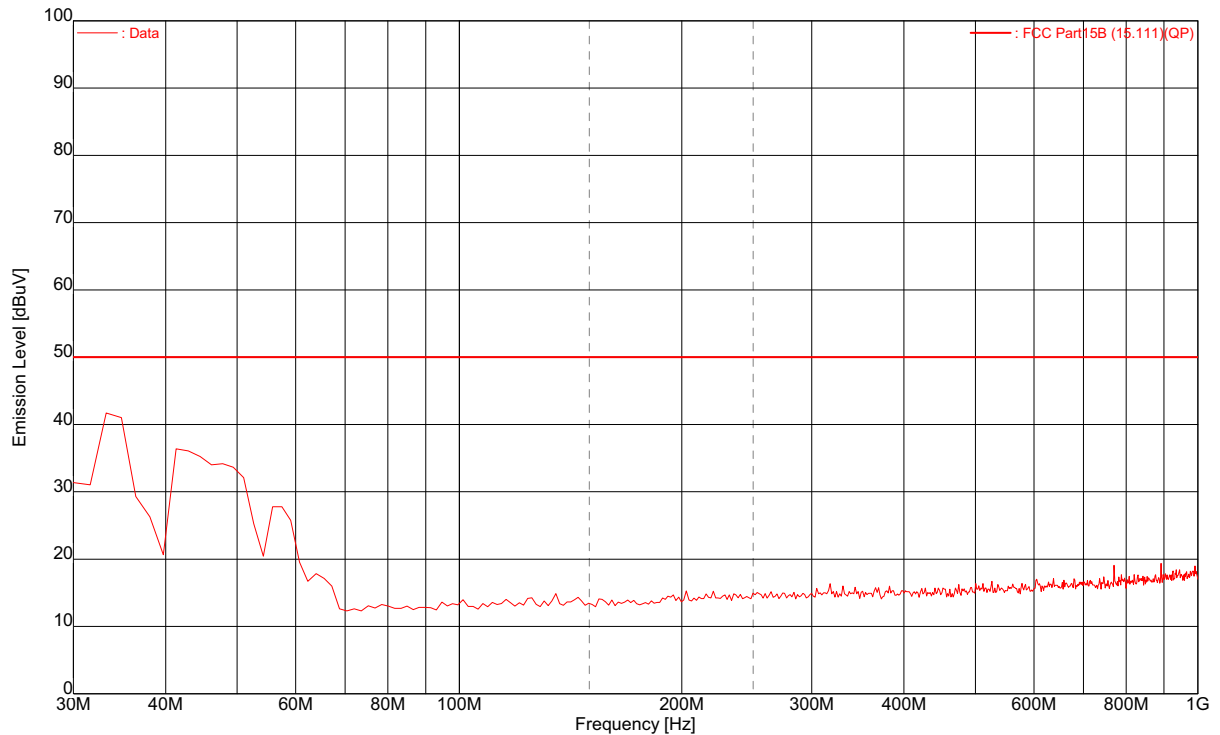
SPECTRUM ANALYSIS

Kashima No.2 Test Site

Date tested : Nov 13 2009
Company : Vertex Standard Co., Ltd.
EUT Name : HF Transceiver
Model number : FT DX 5000
Serial number : 9L000001

Test mode : VFO SCAN (ANT 1)
Power source : AC120V, 60Hz
File number : JT09110005
Engineer : Atsuyuki Morishima
Note :

23.0degC /46.0%



Frequency [MHz]	Reading [dBuV]	Factor [dB]	Emission [dBuV]	Limit [dBuV]	Margin [dB]
30.00	<u>47.2</u>	-15.3	<u>31.9</u>	50.0	<u>18.1</u>
33.60	<u>57.8</u>	-15.3	<u>42.5</u>	50.0	<u>7.5</u>
37.40	<u>42.3</u>	-15.2	<u>27.1</u>	50.0	<u>22.9</u>
41.08	<u>52.9</u>	-15.1	<u>37.8</u>	50.0	<u>12.2</u>
48.00	<u>49.3</u>	-15.0	<u>34.3</u>	50.0	<u>15.7</u>
56.50	<u>43.7</u>	-14.9	<u>28.8</u>	50.0	<u>21.2</u>

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Pad, Cable, Preamp)

emiT 3, 0, 0, 0

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10.3.4 VFO SCAN (ANT 1) [1000 – 5000MHz]

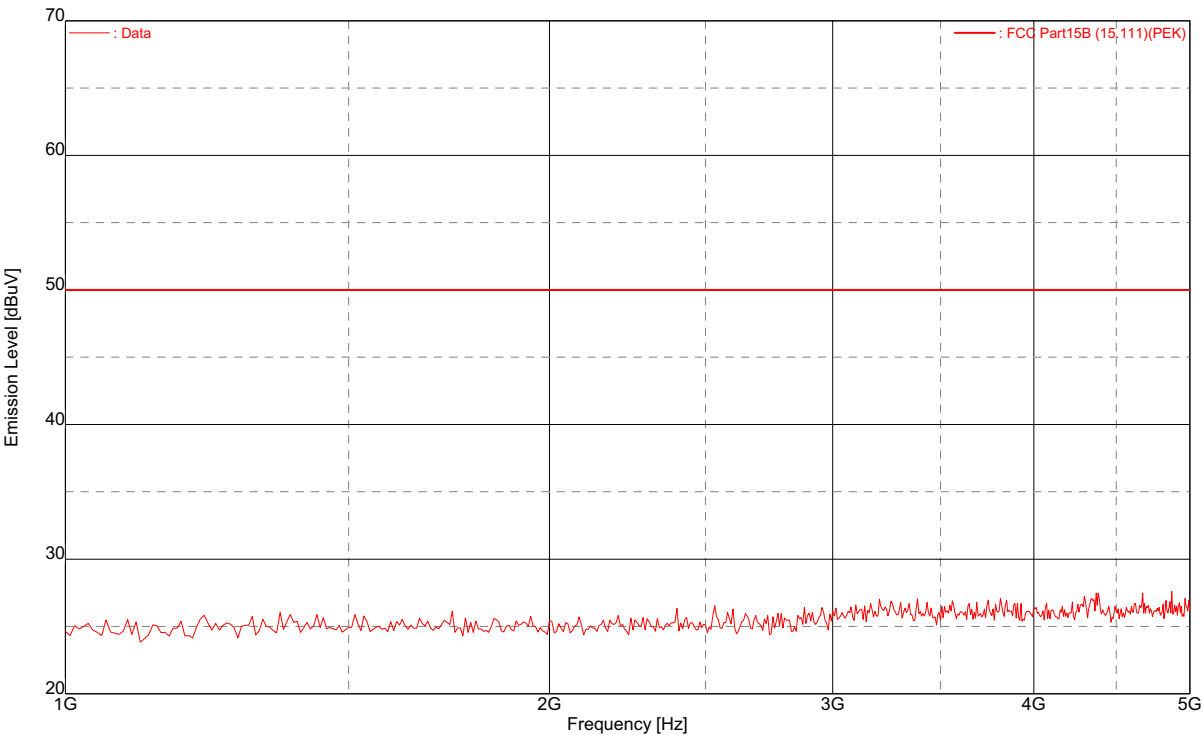
< Graph number #22 >

SPECTRUM ANALYSIS

Kashima No.2 Test Site

Date tested : Nov 12 2009
Company : Vertex Standard Co., Ltd.
EUT Name : HF Transceiver
Model number : FT DX 5000
Serial number : 9L000001

Test mode : VFO SCAN:A (ANT 1)
Power source : AC120V, 60Hz
File number : JT09110005
Engineer : Atsuyuki Morishima
Note :
20.0degC /59.0%



Frequency [MHz]	Reading [dBuV]	Factor [dB]	Emission [dBuV]	Limit [dBuV]	Margin [dB]
N/A	<u>N/A</u>	N/A	<u>N/A</u>	50.0	<u>N/A</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B (15.111) limit
Emission Level = Read + Factor (Pad, Cable, Preamp)

Note : There is the margin of 20dB over expect for the above points.

emiT 3, 0, 0, 0

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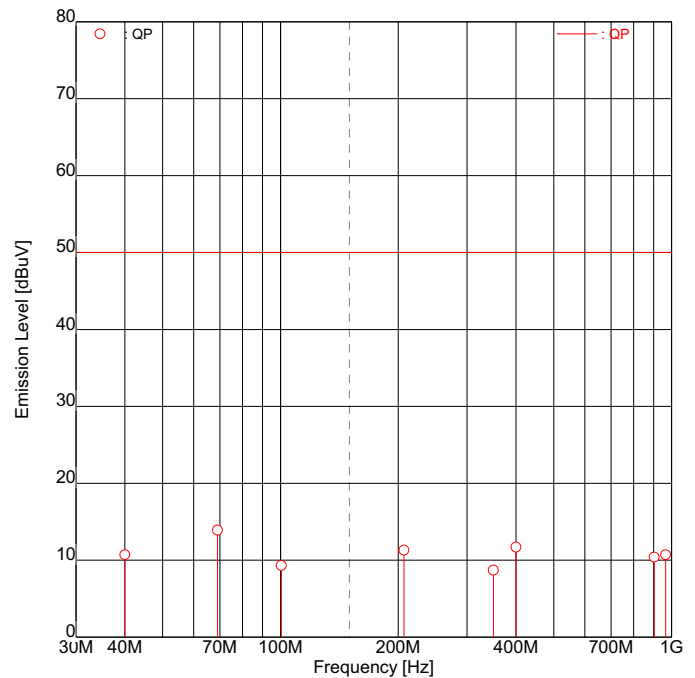
10.3.5 Rx A:B:60.000MHz (ANT 2) [30 – 1000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Power for Antenna Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:60.000MHz (ANT 2)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 13 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B (15.111)
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 22.0 [degC]
HUMIDITY : 45.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQUENCY [MHz]	READING [dBuV]	FACTOR [dB]	EMISSION [dBuV]	LIMIT [dBuV]	MARGIN [dB]
1	40.0000	<u>25.9</u>	-15.2	<u>10.7</u>	50.0	<u>39.3</u>
2	69.0030	<u>28.6</u>	-14.7	<u>13.9</u>	50.0	<u>36.1</u>
3	100.4560	<u>23.5</u>	-14.2	<u>9.3</u>	50.0	<u>40.7</u>
4	207.0000	<u>24.1</u>	-12.8	<u>11.3</u>	50.0	<u>38.7</u>
5	350.2080	<u>20.8</u>	-12.1	<u>8.7</u>	50.0	<u>41.3</u>
6	400.0000	<u>23.9</u>	-12.2	<u>11.7</u>	50.0	<u>38.3</u>
7	903.1700	<u>20.6</u>	-10.2	<u>10.4</u>	50.0	<u>39.6</u>
8	966.0200	<u>20.6</u>	-9.9	<u>10.7</u>	50.0	<u>39.3</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B (15.111) limit
Emission Level = Read + Factor(Pad,Cable,Preamp)

emiT 3, 0, 0, 0

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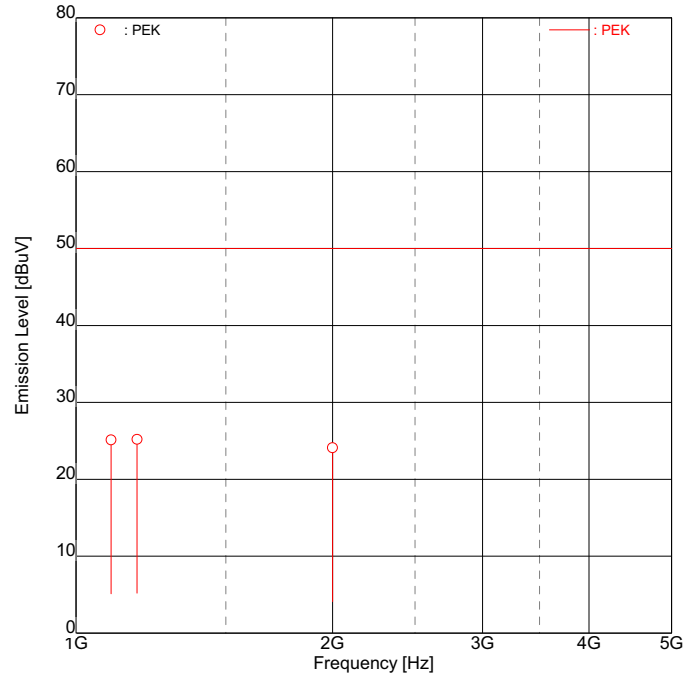
10.3.6 Rx A:B:60.000MHz (ANT 2) [1000 – 5000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Power for Antenna Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx 60.000MHz (ANT 2)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 12 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B (15.111)
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 20.0 [degC]
HUMIDITY : 59.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQUENCY [MHz]	READING [dBuV]	FACTOR [dB]	EMISSION [dBuV]	LIMIT [dBuV]	MARGIN [dB]
1	1099.5800	<u>46.1</u>	-21.0	<u>25.1</u>	50.0	<u>24.9</u>
2	1179.8750	<u>46.0</u>	-20.8	<u>25.2</u>	50.0	<u>24.8</u>
3	2000.0000	<u>43.5</u>	-19.4	<u>24.1</u>	50.0	<u>25.9</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B (15.111) limit
Emission Level = Read + Factor(Pad,Cable,Preamp)

emiT 3, 0, 0, 0

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10.3.7 VFO SCAN (ANT 2) [30 – 1000MHz]

< Graph number #32 >

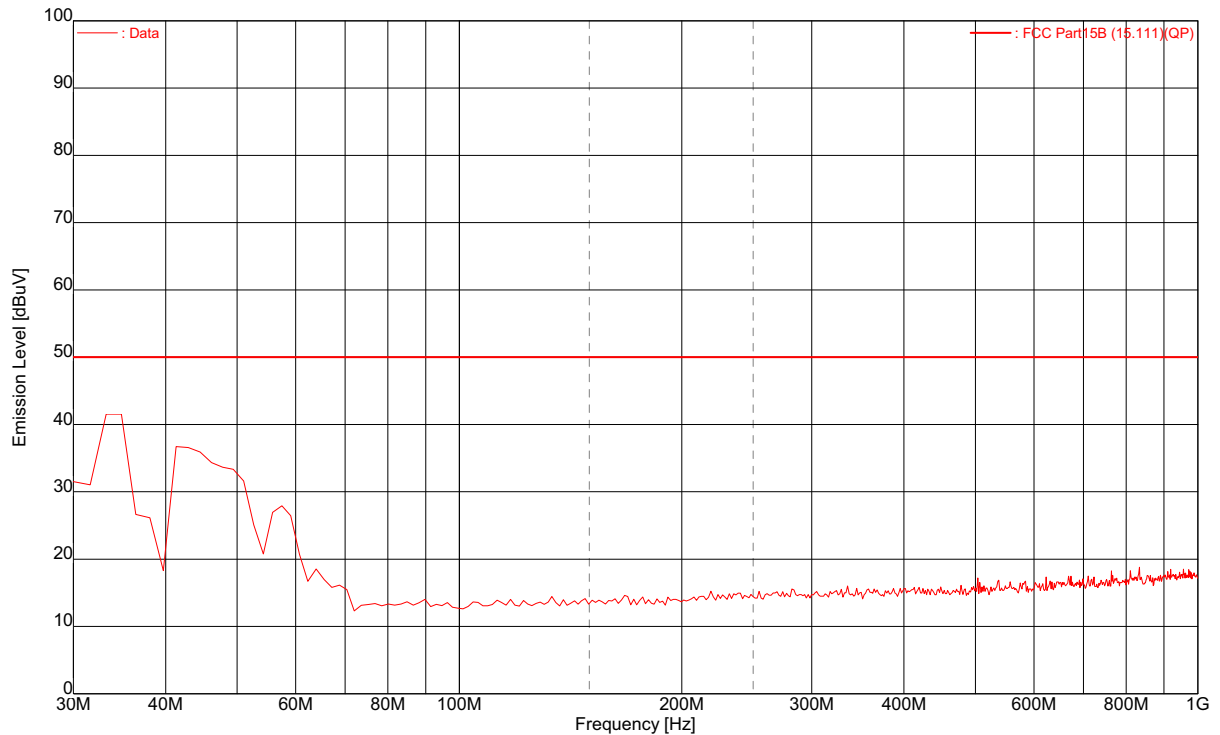
SPECTRUM ANALYSIS

Kashima No.2 Test Site

Date tested : Nov 13 2009
Company : Vertex Standard Co., Ltd.
EUT Name : HF Transceiver
Model number : FT DX 5000
Serial number : 9L000001

Test mode : VFO SCAN (ANT 2)
Power source : AC120V, 60Hz
File number : JT09110005
Engineer : Atsuyuki Morishima
Note :

23.0degC /46.0%



Frequency [MHz]	Reading [dBuV]	Factor [dB]	Emission [dBuV]	Limit [dBuV]	Margin [dB]
30.00	<u>47.4</u>	-15.3	<u>32.1</u>	50.0	<u>17.9</u>
33.60	<u>57.6</u>	-15.3	<u>42.3</u>	50.0	<u>7.7</u>
37.40	<u>41.9</u>	-15.2	<u>26.7</u>	50.0	<u>23.3</u>
41.08	<u>52.9</u>	-15.1	<u>37.8</u>	50.0	<u>12.2</u>
48.00	<u>49.2</u>	-15.0	<u>34.2</u>	50.0	<u>15.8</u>
56.50	<u>43.3</u>	-14.9	<u>28.4</u>	50.0	<u>21.6</u>

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Pad, Cable, Preamp)

emiT 3, 0, 0, 0

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10.3.8 VFO SCAN (ANT 2) [1000 – 5000MHz]

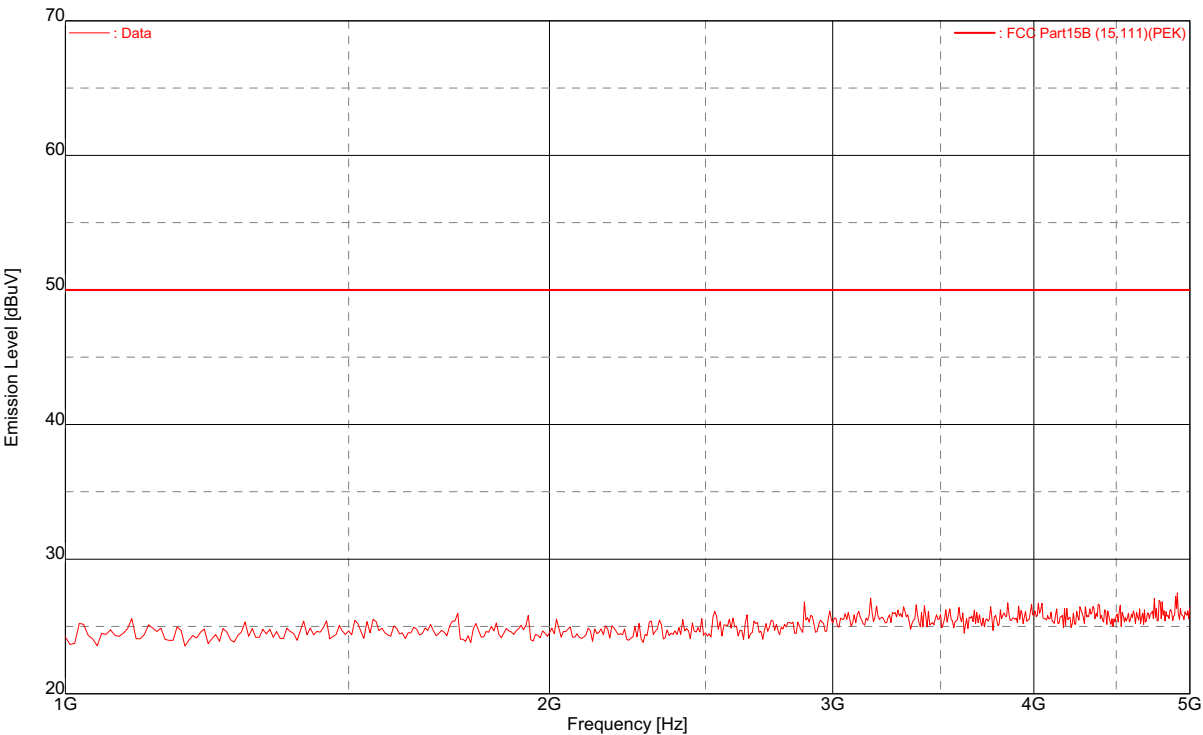
< Graph number #23 >

SPECTRUM ANALYSIS

Kashima No.2 Test Site

Date tested : Nov 12 2009
Company : Vertex Standard Co., Ltd.
EUT Name : HF Transceiver
Model number : FT DX 5000
Serial number : 9L000001

Test mode : VFO SCAN:A (ANT 2)
Power source : AC120V, 60Hz
File number : JT09110005
Engineer : Atsuyuki Morishima
Note :
19.0degC /50.0%



Frequency [MHz]	Reading [dBuV]	Factor [dB]	Emission [dBuV]	Limit [dBuV]	Margin [dB]
N/A	<u>N/A</u>	N/A	<u>N/A</u>	50.0	<u>N/A</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B (15.111) limit
Emission Level = Read + Factor (Pad, Cable, Preamp)

Note : There is the margin of 20dB over expect for the above points.

emiT 3, 0, 0, 0

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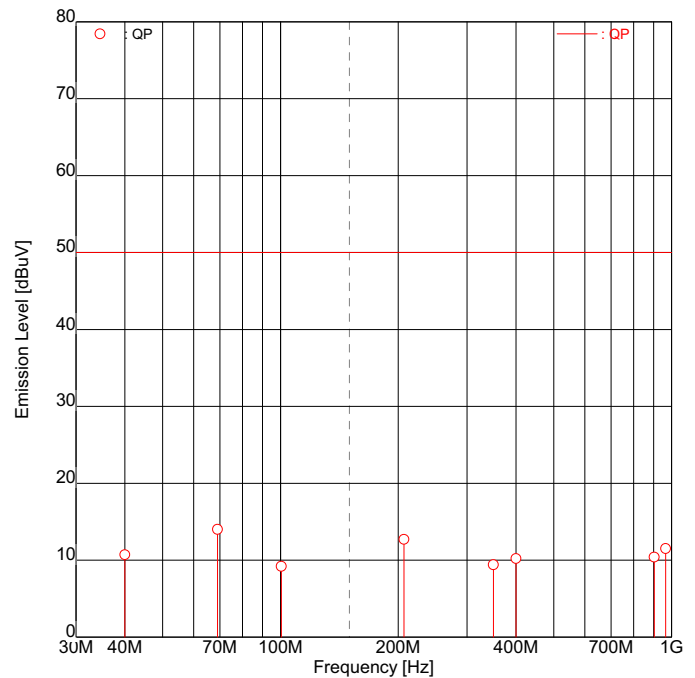
10.3.9 Rx A:B:60.000MHz (ANT 3) [30 – 1000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Power for Antenna Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:60.000MHz (ANT 3)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 13 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B (15.111)
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 22.0 [degC]
HUMIDITY : 45.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQUENCY [MHz]	READING [dBuV]	FACTOR [dB]	EMISSION [dBuV]	LIMIT [dBuV]	MARGIN [dB]
1	40.0000	<u>25.9</u>	-15.2	<u>10.7</u>	50.0	<u>39.3</u>
2	69.0030	<u>28.7</u>	-14.7	<u>14.0</u>	50.0	<u>36.0</u>
3	100.4560	<u>23.4</u>	-14.2	<u>9.2</u>	50.0	<u>40.8</u>
4	207.0000	<u>25.5</u>	-12.8	<u>12.7</u>	50.0	<u>37.3</u>
5	350.2080	<u>21.5</u>	-12.1	<u>9.4</u>	50.0	<u>40.6</u>
6	400.0000	<u>22.4</u>	-12.2	<u>10.2</u>	50.0	<u>39.8</u>
7	903.1700	<u>20.6</u>	-10.2	<u>10.4</u>	50.0	<u>39.6</u>
8	966.0200	<u>21.4</u>	-9.9	<u>11.5</u>	50.0	<u>38.5</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B (15.111) limit
Emission Level = Read + Factor(Pad,Cable,Preamp)

emiT 3, 0, 0, 0

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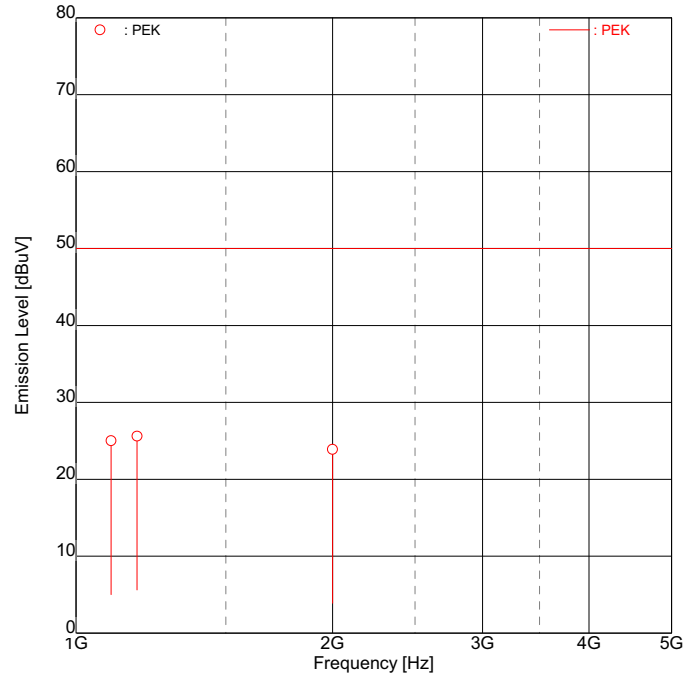
10.3.10 Rx A:B:60.000MHz (ANT 3) [1000 – 5000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Power for Antenna Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx 60.000MHz (ANT 3)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 12 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B (15.111)
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 20.0 [degC]
HUMIDITY : 59.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQUENCY [MHz]	READING [dBuV]	FACTOR [dB]	EMISSION [dBuV]	LIMIT [dBuV]	MARGIN [dB]
1	1099.5800	<u>46.0</u>	-21.0	<u>25.0</u>	50.0	<u>25.0</u>
2	1179.8750	<u>46.4</u>	-20.8	<u>25.6</u>	50.0	<u>24.4</u>
3	2000.0000	<u>43.3</u>	-19.4	<u>23.9</u>	50.0	<u>26.1</u>

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor(Pad,Cable,Preamp)

emiT 3, 0, 0, 0

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10.3.11 VFO SCAN (ANT 3) [30 – 1000MHz]

< Graph number #33 >

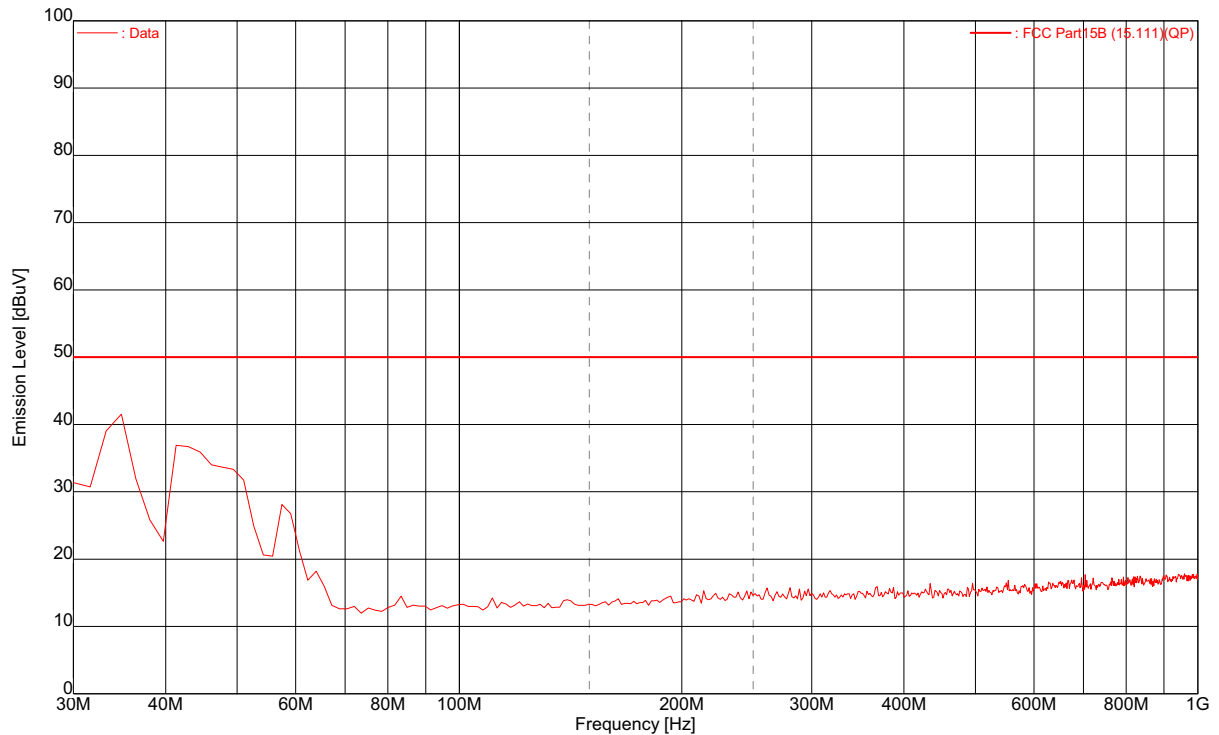
SPECTRUM ANALYSIS

Kashima No.2 Test Site

Date tested : Nov 13 2009
Company : Vertex Standard Co., Ltd.
EUT Name : HF Transceiver
Model number : FT DX 5000
Serial number : 9L000001

Test mode : VFO SCAN (ANT 3)
Power source : AC120V, 60Hz
File number : JT09110005
Engineer : Atsuyuki Morishima
Note :

23.0degC /46.0%



Frequency [MHz]	Reading [dBuV]	Factor [dB]	Emission [dBuV]	Limit [dBuV]	Margin [dB]
30.00	<u>47.0</u>	-15.3	<u>31.7</u>	50.0	<u>18.3</u>
33.60	<u>57.7</u>	-15.3	<u>42.4</u>	50.0	<u>7.6</u>
37.40	<u>42.0</u>	-15.2	<u>26.8</u>	50.0	<u>23.2</u>
41.08	<u>52.9</u>	-15.1	<u>37.8</u>	50.0	<u>12.2</u>
48.00	<u>49.2</u>	-15.0	<u>34.2</u>	50.0	<u>15.8</u>
56.50	<u>43.3</u>	-14.9	<u>28.4</u>	50.0	<u>21.6</u>

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Pad, Cable, Preamp)

emiT 3, 0, 0, 0

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10.3.12 VFO SCAN (ANT 3) [1000 – 5000MHz]

< Graph number #36 >

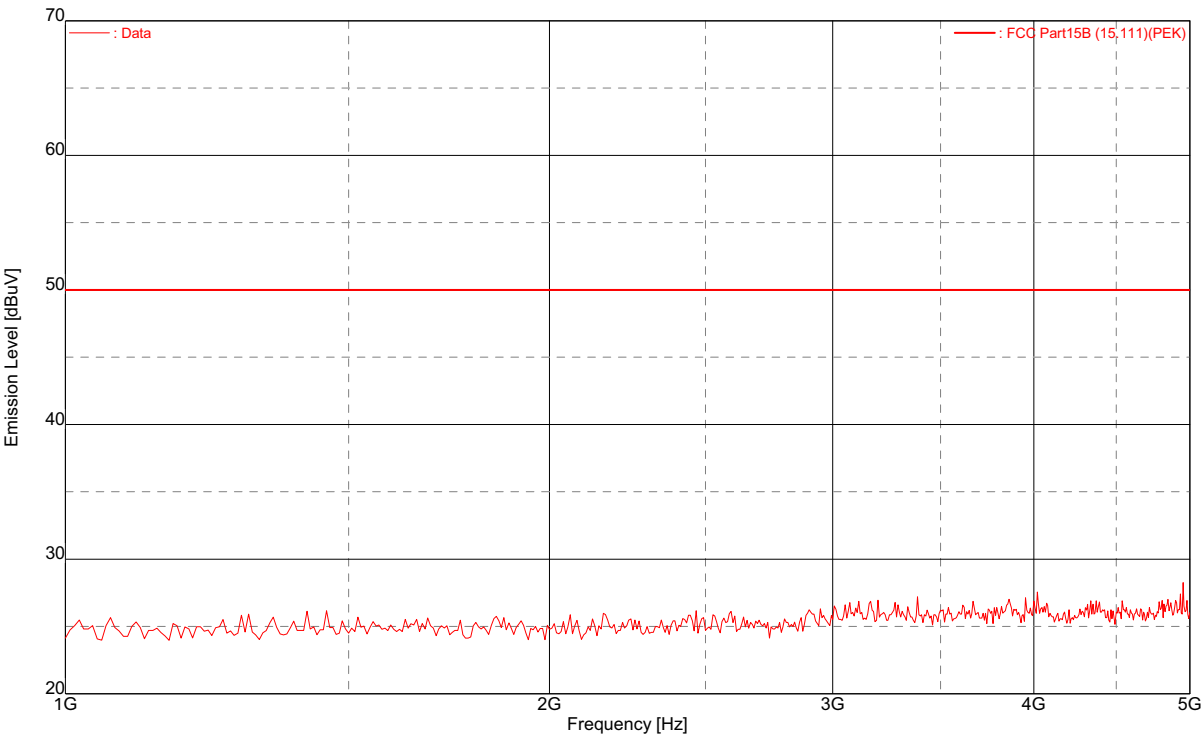
SPECTRUM ANALYSIS

Kashima No.2 Test Site

Date tested : Nov 13 2009
Company : Vertex Standard Co., Ltd.
EUT Name : HF Transceiver
Model number : FT DX 5000
Serial number : 9L000001

Test mode : VFO SCAN:A (ANT 3)
Power source : AC120V, 60Hz
File number : JT09110005
Engineer : Atsuyuki Morishima
Note :

20.0degC /59.0%



Frequency [MHz]	Reading [dBuV]	Factor [dB]	Emission [dBuV]	Limit [dBuV]	Margin [dB]
N/A	<u>N/A</u>	N/A	<u>N/A</u>	50.0	<u>N/A</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B (15.111) limit
Emission Level = Read + Factor (Pad, Cable, Preamp)

Note : There is the margin of 20dB over expect for the above points.

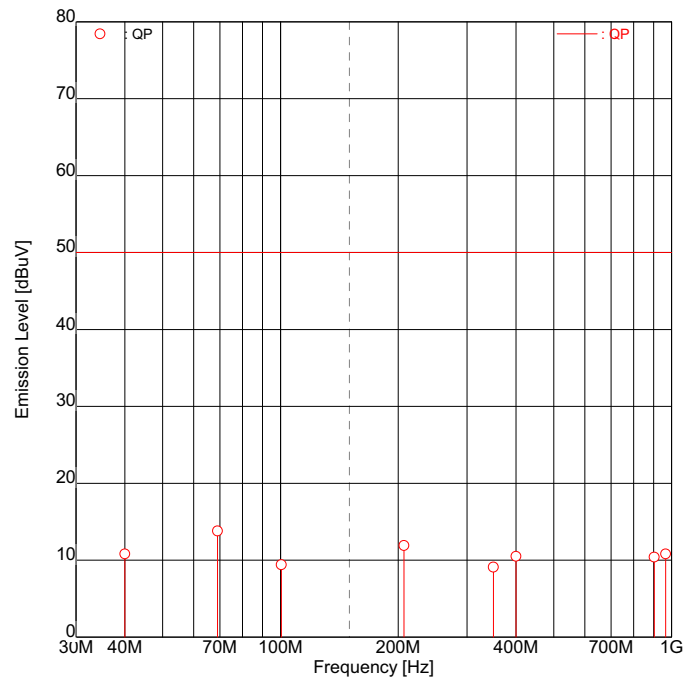
10.3.13 Rx A:B:60.000MHz (ANT 4) [30 – 1000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Power for Antenna Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:60.000MHz (ANT 4)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 13 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B (15.111)
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 22.5 [degC]
HUMIDITY : 46.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQUENCY [MHz]	READING [dBuV]	FACTOR [dB]	EMISSION [dBuV]	LIMIT [dBuV]	MARGIN [dB]
1	40.0000	<u>26.0</u>	-15.2	<u>10.8</u>	50.0	<u>39.2</u>
2	69.0030	<u>28.5</u>	-14.7	<u>13.8</u>	50.0	<u>36.2</u>
3	100.4560	<u>23.6</u>	-14.2	<u>9.4</u>	50.0	<u>40.6</u>
4	207.0000	<u>24.7</u>	-12.8	<u>11.9</u>	50.0	<u>38.1</u>
5	350.2080	<u>21.2</u>	-12.1	<u>9.1</u>	50.0	<u>40.9</u>
6	400.0000	<u>22.7</u>	-12.2	<u>10.5</u>	50.0	<u>39.5</u>
7	903.1700	<u>20.6</u>	-10.2	<u>10.4</u>	50.0	<u>39.6</u>
8	966.0200	<u>20.7</u>	-9.9	<u>10.8</u>	50.0	<u>39.2</u>

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor(Pad,Cable,Preamp)

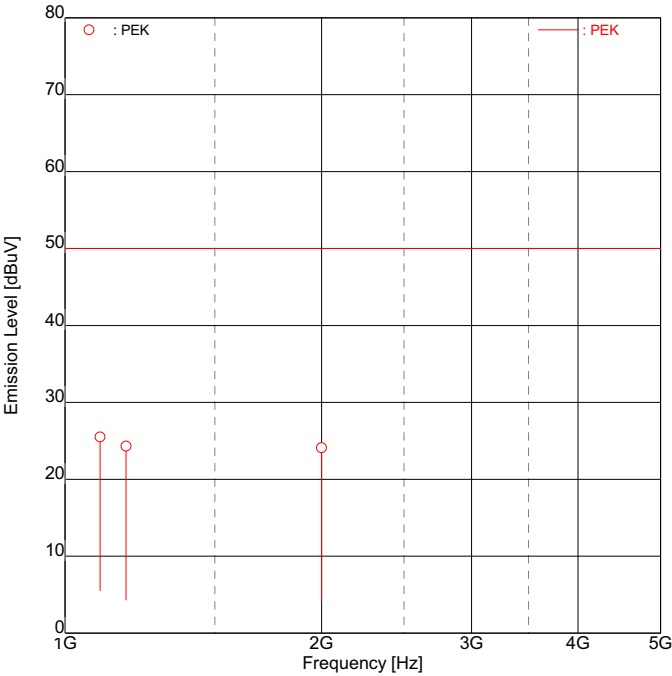
emiT 3, 0, 0, 0

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10.3.14 Rx A:B:60.000MHz (ANT 4) [1000 – 5000MHz]

Intertek Japan K.K.
Tochigi No.2 Test Site
Conducted Power for Antenna Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx 60.000MHz (ANT 4)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 12 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B (15.111)
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 20.0 [degC]
HUMIDITY : 59.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQUENCY [MHz]	READING [dBuV]	FACTOR [dB]	EMISSION [dBuV]	LIMIT [dBuV]	MARGIN [dB]
1	1099.5800	<u>46.5</u>	-21.0	<u>25.5</u>	50.0	<u>24.5</u>
2	1179.8750	<u>45.1</u>	-20.8	<u>24.3</u>	50.0	<u>25.7</u>
3	2000.0000	<u>43.5</u>	-19.4	<u>24.1</u>	50.0	<u>25.9</u>

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor(Pad,Cable,Preamp)

10.3.15 VFO SCAN (ANT 4) [30 – 1000MHz]

< Graph number #34 >

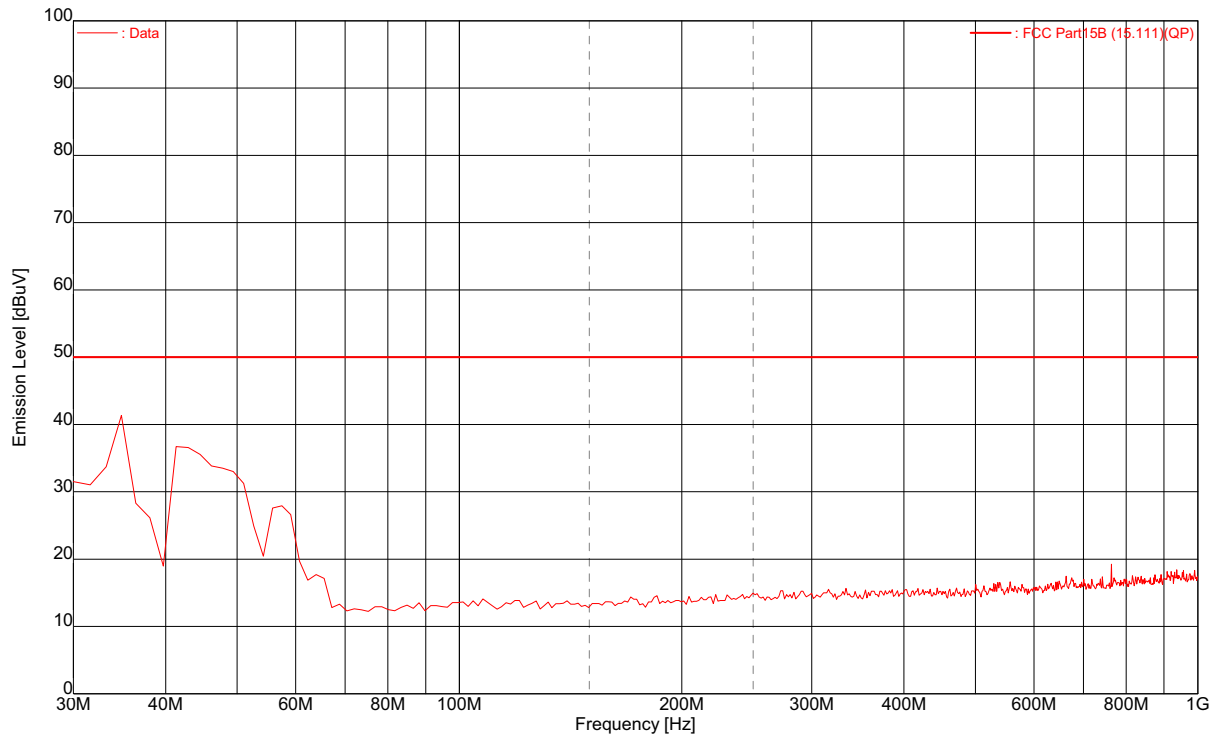
SPECTRUM ANALYSIS

Kashima No.2 Test Site

23.0degC /45.0%

Date tested : Nov 13 2009
Company : Vertex Standard Co., Ltd.
EUT Name : HF Transceiver
Model number : FT DX 5000
Serial number : 9L000001

Test mode : VFO SCAN (ANT 4)
Power source : AC120V, 60Hz
File number : JT09110005
Engineer : Atsuyuki Morishima
Note :



Frequency [MHz]	Reading [dBuV]	Factor [dB]	Emission [dBuV]	Limit [dBuV]	Margin [dB]
30.00	<u>47.1</u>	-15.3	<u>31.8</u>	50.0	<u>18.2</u>
33.60	<u>57.7</u>	-15.3	<u>42.4</u>	50.0	<u>7.6</u>
37.40	<u>41.8</u>	-15.2	<u>26.6</u>	50.0	<u>23.4</u>
41.08	<u>52.9</u>	-15.1	<u>37.8</u>	50.0	<u>12.2</u>
48.00	<u>49.2</u>	-15.0	<u>34.2</u>	50.0	<u>15.8</u>
56.50	<u>43.4</u>	-14.9	<u>28.5</u>	50.0	<u>21.5</u>

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Pad, Cable, Preamp)

emiT 3, 0, 0, 0

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10.3.16 VFO SCAN (ANT 4) [1000 – 5000MHz]

< Graph number #37 >

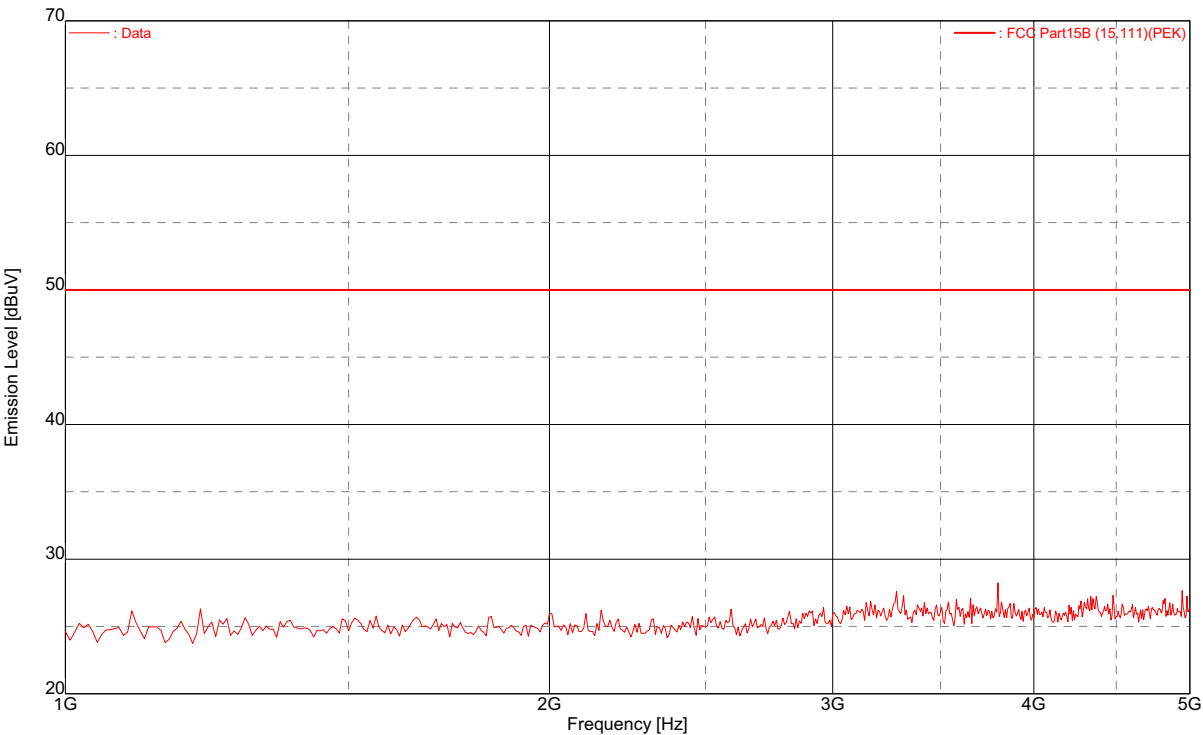
SPECTRUM ANALYSIS

Kashima No.2 Test Site

Date tested : Nov 13 2009
Company : Vertex Standard Co., Ltd.
EUT Name : HF Transceiver
Model number : FT DX 5000
Serial number : 9L000001

Test mode : VFO SCAN:A (ANT 4)
Power source : AC120V, 60Hz
File number : JT09110005
Engineer : Atsuyuki Morishima
Note :

22.0degC /47.0%



Frequency [MHz]	Reading [dBuV]	Factor [dB]	Emission [dBuV]	Limit [dBuV]	Margin [dB]
N/A	<u>N/A</u>	N/A	<u>N/A</u>	50.0	<u>N/A</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B (15.111) limit
Emission Level = Read + Factor (Pad, Cable, Preamp)

Note : There is the margin of 20dB over expect for the above points.

emiT 3, 0, 0, 0

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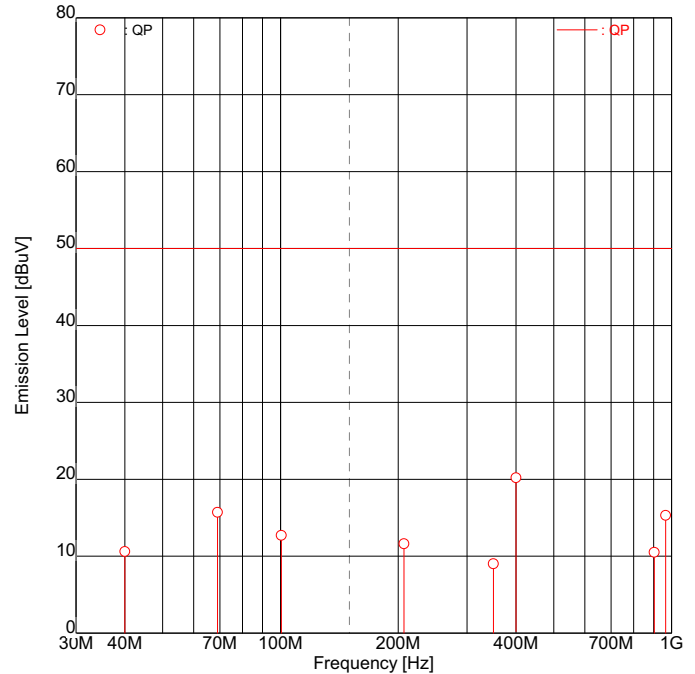
10.3.17 Rx A:B:60.000MHz (RX ANT) [30 – 1000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Power for Antenna Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx A:B:60.000MHz (RX ANT)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 13 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B (15.111)
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 22.0 [degC]
HUMIDITY : 45.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQUENCY [MHz]	READING [dBuV]	FACTOR [dB]	EMISSION [dBuV]	LIMIT [dBuV]	MARGIN [dB]
1	40.0000	<u>25.8</u>	-15.2	<u>10.6</u>	50.0	<u>39.4</u>
2	69.0030	<u>30.4</u>	-14.7	<u>15.7</u>	50.0	<u>34.3</u>
3	100.4560	<u>26.9</u>	-14.2	<u>12.7</u>	50.0	<u>37.3</u>
4	207.0000	<u>24.4</u>	-12.8	<u>11.6</u>	50.0	<u>38.4</u>
5	350.2080	21.1	-12.1	9.0	50.0	41.0
6	400.0000	<u>32.4</u>	-12.2	<u>20.2</u>	50.0	<u>29.8</u>
7	903.1700	20.7	-10.2	10.5	50.0	39.5
8	966.0200	<u>25.2</u>	-9.9	<u>15.3</u>	50.0	<u>34.7</u>

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor(Pad,Cable,Preamp)

emiT 3, 0, 0, 0

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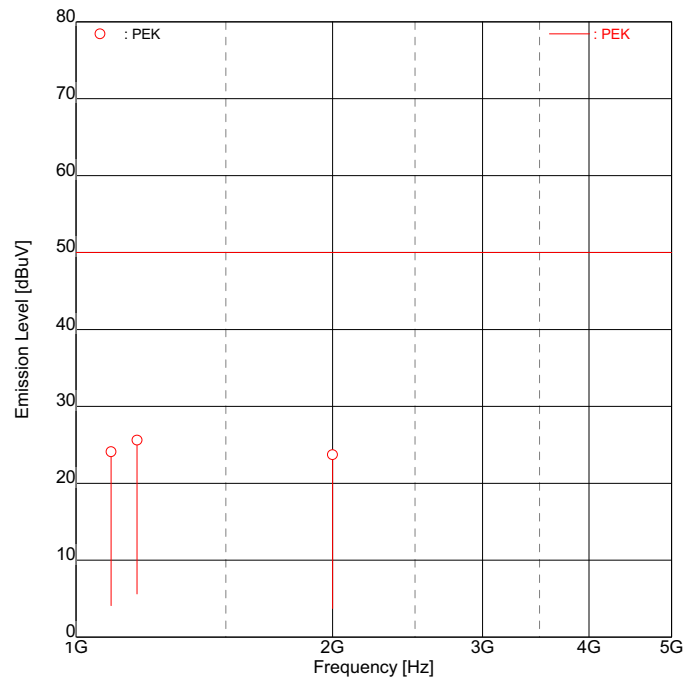
10.3.18 Rx A:B:60.000MHz (RX ANT) [1000 – 5000MHz]

Intertek Japan K.K.

Tochigi No.2 Test Site

Conducted Power for Antenna Port

APPLICANT : Vertex Standard Co., Ltd.
EUT NAME : HF Transceiver
MODEL NO. : FT DX 5000
SERIAL NO. : 9L000001
TEST MODE : Rx 60.000MHz (RX ANT)
POWER SOURCE : AC120V, 60Hz
DATE TESTED : Nov 12 2009
FILE NO. : JT09110005
REGULATION : FCC Part15B (15.111)
TEST METHOD : ANSI C63.4-2003
TEMPERATURE : 20.0 [degC]
HUMIDITY : 59.0 [%]
NOTE :



ENGINEER : Atsuyuki Morishima

FREQUENCY [No]	FREQUENCY [MHz]	READING [dBuV]	FACTOR [dB]	EMISSION [dBuV]	LIMIT [dBuV]	MARGIN [dB]
1	1099.5800	<u>45.1</u>	-21.0	<u>24.1</u>	50.0	<u>25.9</u>
2	1179.8750	<u>46.4</u>	-20.8	<u>25.6</u>	50.0	<u>24.4</u>
3	2000.0000	<u>43.1</u>	-19.4	<u>23.7</u>	50.0	<u>26.3</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B (15.111) limit
Emission Level = Read + Factor(Pad,Cable,Preamp)

emiT 3, 0, 0, 0

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10.3.19 VFO SCAN (RX ANT) [30 – 1000MHz]

< Graph number #35 >

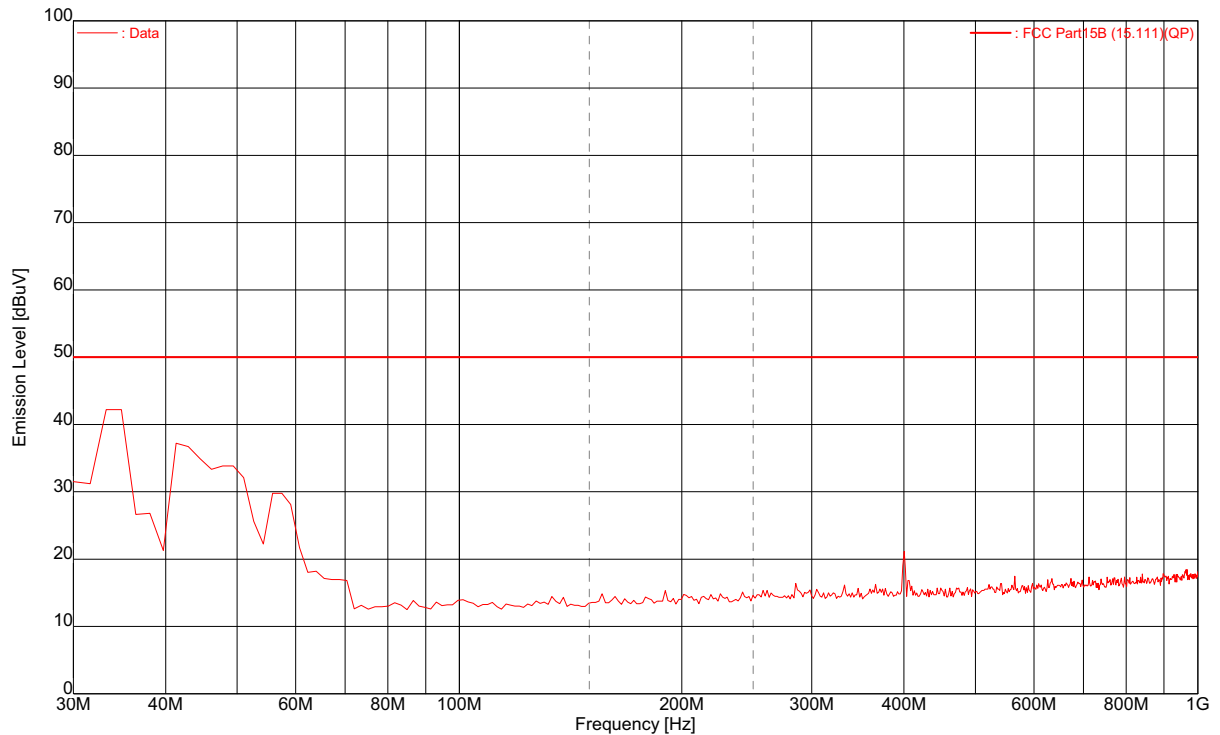
SPECTRUM ANALYSIS

Kashima No.2 Test Site

Date tested : Nov 13 2009
Company : Vertex Standard Co., Ltd.
EUT Name : HF Transceiver
Model number : FT DX 5000
Serial number : 9L000001

Test mode : VFO SCAN (RX ANT)
Power source : AC120V, 60Hz
File number : JT09110005
Engineer : Atsuyuki Morishima
Note :

23.0degC /47.0%



Frequency [MHz]	Reading [dBuV]	Factor [dB]	Emission [dBuV]	Limit [dBuV]	Margin [dB]
30.00	<u>47.2</u>	-15.3	<u>31.9</u>	50.0	<u>18.1</u>
33.60	<u>58.4</u>	-15.3	<u>43.1</u>	50.0	<u>6.9</u>
37.40	<u>42.2</u>	-15.2	<u>27.0</u>	50.0	<u>23.0</u>
41.08	<u>53.4</u>	-15.1	<u>38.3</u>	50.0	<u>11.7</u>
48.00	<u>49.7</u>	-15.0	<u>34.7</u>	50.0	<u>15.3</u>
56.50	<u>45.0</u>	-14.9	<u>30.1</u>	50.0	<u>19.9</u>
400.00	31.6	-12.2	19.4	50.0	30.6

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Pad, Cable, Preamp)

emiT 3, 0, 0, 0

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10.3.20 VFO SCAN (RX ANT) [1000 – 5000MHz]

< Graph number #38 >

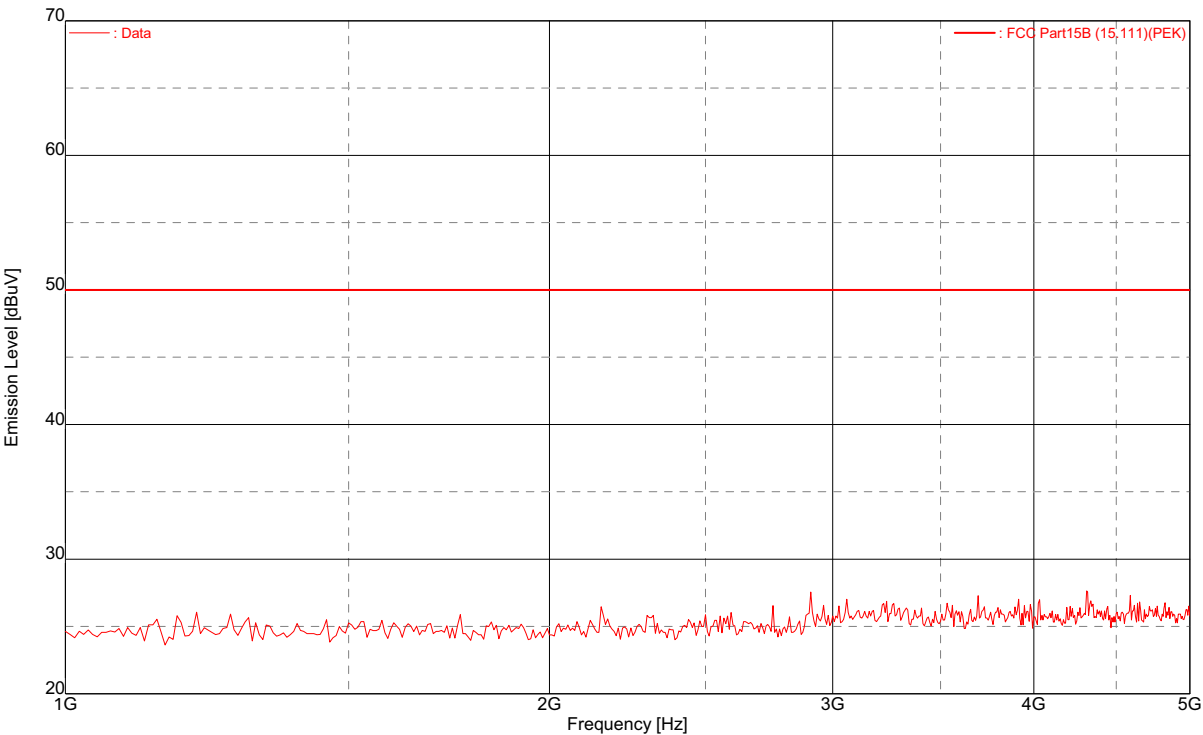
SPECTRUM ANALYSIS

Kashima No.2 Test Site

Date tested : Nov 13 2009
Company : Vertex Standard Co., Ltd.
EUT Name : HF Transceiver
Model number : FT DX 5000
Serial number : 9L000001

Test mode : VFO SCAN:A (RX ANT)
Power source : AC120V, 60Hz
File number : JT09110005
Engineer : Atsuyuki Morishima
Note :

22.0degC /47.0%



Frequency [MHz]	Reading [dBuV]	Factor [dB]	Emission [dBuV]	Limit [dBuV]	Margin [dB]
N/A	<u>N/A</u>	N/A	<u>N/A</u>	50.0	<u>N/A</u>

Higher six points are underlined.
Other frequencies : Below the FCC Part15B (15.111) limit
Emission Level = Read + Factor (Pad, Cable, Preamp)

Note : There is the margin of 20dB over expect for the above points.

emiT 3, 0, 0, 0

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10.4 38dB Rejection Test

10.4.1 VFO SCAN (ANT1)

Location	:	Tochigi No.2 Test Site
Date Tested	:	November 14, 2009
Temperature	:	22 [degC]
Humidity	:	60 [%]
Engineer	:	Atsuyuki Morishima

Injected Frequency [MHz]	Detected Frequency [MHz]	12dB SINAD Reading Injected Frequency [dBm]	12dB SINAD Reading Detected Frequency	Rejection Level [dB]	Margin [dB]
824.040	No Point Detected	N / A	N / A	N / A	N / A
836.505	No Point Detected	N / A	N / A	N / A	N / A
848.970	No Point Detected	N / A	N / A	N / A	N / A
869.040	No Point Detected	N / A	N / A	N / A	N / A
881.505	No Point Detected	N / A	N / A	N / A	N / A
893.970	No Point Detected	N / A	N / A	N / A	N / A

The Audio Analyzer condition :

12dB SINAD measurement level = 750mV.

10.4.2 VFO SCAN (ANT2)

Location	:	Tochigi No.2 Test Site
Date Tested	:	November 14, 2009
Temperature	:	22 [degC]
Humidity	:	60 [%]
Engineer	:	Atsuyuki Morishima

Injected Frequency [MHz]	Detected Frequency [MHz]	12dB SINAD Reading Injected Frequency [dBm]	12dB SINAD Reading Detected Frequency	Rejection Level [dB]	Margin [dB]
824.040	No Point Detected	N / A	N / A	N / A	N / A
836.505	No Point Detected	N / A	N / A	N / A	N / A
848.970	No Point Detected	N / A	N / A	N / A	N / A
869.040	No Point Detected	N / A	N / A	N / A	N / A
881.505	No Point Detected	N / A	N / A	N / A	N / A
893.970	No Point Detected	N / A	N / A	N / A	N / A

The Audio Analyzer condition :
12dB SINAD measurement level = 750mV.

10.4.3 VFO SCAN (ANT3)

Location	:	Tochigi No.2 Test Site
Date Tested	:	November 14, 2009
Temperature	:	22 [degC]
Humidity	:	60 [%]
Engineer	:	Atsuyuki Morishima

Injected Frequency [MHz]	Detected Frequency [MHz]	12dB SINAD Reading Injected Frequency [dBm]	12dB SINAD Reading Detected Frequency	Rejection Level [dB]	Margin [dB]
824.040	No Point Detected	N / A	N / A	N / A	N / A
836.505	No Point Detected	N / A	N / A	N / A	N / A
848.970	No Point Detected	N / A	N / A	N / A	N / A
869.040	No Point Detected	N / A	N / A	N / A	N / A
881.505	No Point Detected	N / A	N / A	N / A	N / A
893.970	No Point Detected	N / A	N / A	N / A	N / A

The Audio Analyzer condition :
12dB SINAD measurement level = 750mV.

10.4.4 VFO SCAN (ANT4)

Location	:	Tochigi No.2 Test Site
Date Tested	:	November 14, 2009
Temperature	:	22 [degC]
Humidity	:	60 [%]
Engineer	:	Atsuyuki Morishima

Injected Frequency [MHz]	Detected Frequency [MHz]	12dB SINAD Reading Injected Frequency [dBm]	12dB SINAD Reading Detected Frequency	Rejection Level [dB]	Margin [dB]
824.040	No Point Detected	N / A	N / A	N / A	N / A
836.505	No Point Detected	N / A	N / A	N / A	N / A
848.970	No Point Detected	N / A	N / A	N / A	N / A
869.040	No Point Detected	N / A	N / A	N / A	N / A
881.505	No Point Detected	N / A	N / A	N / A	N / A
893.970	No Point Detected	N / A	N / A	N / A	N / A

The Audio Analyzer condition :
12dB SINAD measurement level = 750mV.

10.4.5 VFO SCAN (RX ANT)

Location	:	Tochigi No.2 Test Site
Date Tested	:	November 14, 2009
Temperature	:	22 [degC]
Humidity	:	60 [%]
Engineer	:	Atsuyuki Morishima

Injected Frequency [MHz]	Detected Frequency [MHz]	12dB SINAD Reading Injected Frequency [dBm]	12dB SINAD Reading Detected Frequency	Rejection Level [dB]	Margin [dB]
824.040	No Point Detected	N / A	N / A	N / A	N / A
836.505	No Point Detected	N / A	N / A	N / A	N / A
848.970	No Point Detected	N / A	N / A	N / A	N / A
869.040	No Point Detected	N / A	N / A	N / A	N / A
881.505	No Point Detected	N / A	N / A	N / A	N / A
893.970	No Point Detected	N / A	N / A	N / A	N / A

The Audio Analyzer condition :
12dB SINAD measurement level = 750mV.

10.5 Sample Calculations

10.5.1 Conducted disturbance at mains terminals

Example @ 1.5945MHz (AV)

Emission Level	=	Meter Reading	27.5	dBuV
	+	Factor	10.4	dB
			=	37.9 dBuV
Margin	=	Limit	46.0	dBuV
	-	Emission Level	37.9	dBuV
			=	8.1 dB

Factor = LISN Factor + Cable Loss + Pad Loss

10.5.2 Radiated disturbance

Example @ 88.80MHz

Emission Level	=	Meter Reading	48.8	dBuV
	+	Factor	-9.7	dB/m
			=	39.1 dBuV/m
Margin	=	Limit	43.5	dBuV/m
	-	Emission Level	39.1	dBuV/m
			=	4.4 dB

Factor = Antenna Factor + Cable Loss + Amplifier Gain + Pad Loss

10.5.3 Conducted Power on Antenna Port

Example @ 33.60MHz

Output Power Level	=	Meter Reading		58.4	dBuV
	+	Factor		-15.3	dB
			=	43.1	dBuV
Margin	=	Limit (:2.0nW)		50.0	dBuV
	-	Output Power Level		43.1	dBuV
			=	6.9	dB

Factor = Cable Loss + Amplifier Gain + Pad Loss

10.5.4 38dB Rejection

Example @ N/A MHz

Rejection Level	=	12dB SINAD Reading at Injected Frequency		N/A	dBm
	-	12dB SINAD Reading at Detected Frequency		N/A	dBm
			=	N/A	dB
Margin	=	Rejection Level		N/A	dB
	-	Limit		38.0	dB
			=	N/A	dB

SECTION 11. LIST OF MEASURING INSTRUMENTS

Instrument	Model No.	Serial No.	Manufacturer	Cal. date	Due date
LISN (EUT)	ESH2-Z5	892377/021	ROHDE & SCHWARZ	Jul. 06, 09	Jul. 31, 10
10dB Attenuator	CFA-01(BPJ-10)	None	TAMAGAWA	May 20, 09	May 31, 10
LISN (Peripheral)	KNW-242	8-851-27	KYORITSU	Jul. 14, 09	Jul. 31, 10
50Ω Termination	CT-01	None	TAMAGAWA	Jul. 14, 09	Jul. 31, 10
Coaxial cable(C1)	5D-2W(6.0 m)	2CL01a	INTERTEK	May 20, 09	May 31, 10
Coaxial cable(C2)	RG-5A/U(7.0 m)	2CL02	INTERTEK	May 20, 09	May 31, 10
Coaxial cable(C3)	5D-2W(0.2 m)	2CL03	INTERTEK	May 20, 09	May 31, 10
Coaxial cable(C4)	5D-2W(1.7 m)	2CL04	INTERTEK	May 20, 09	May 31, 10
Broad Band antenna	VULB9168	218	Schwarzbeck	Mar. 05, 09	Mar. 31, 10
Double ridged antenna	3115	9903-5699	EMCO	Apr. 28, 09	Apr. 30, 10
6dB Attenuator	CFA-01(NPJ-6)	None	TAMAGAWA	May 20, 09	May 31, 10
3dB Attenuator	8493C	07818	HEWLETT PACKARD	Apr. 22, 09	Apr. 30, 10
6dB Attenuator	8493C	18493	HEWLETT PACKARD	Apr. 22, 09	Apr. 30, 10
10dB Attenuator	CFA-05NPJ-10	262856	TAMAGAWA	Nov. 06, 09	Nov. 30, 10
10dB Attenuator	6810.17.B	5061	SUHNER	Nov. 06, 09	Nov. 30, 10
ANT Termination	R40424000	None	Radall	N/A	N/A
ANT Termination	090-0510	None	Yuetsu	N/A	N/A
Amplifier	8449B	3008A01182	HEWLETT PACKARD	Apr. 22, 09	Apr. 30, 10
Step Attenuator	8494B	2805A14563	HEWLETT PACKARD	May 20, 09	May 31, 10
Amplifier	8447D	2727A05324	HEWLETT PACKARD	May 20, 09	May 31, 10
Amplifier	8449B	3008A01182	HEWLETT PACKARD	Apr. 22, 09	Apr. 30, 10
Spectrum analyzer	8563E (Firmware Revision 971024)	3821A09565	HEWLETT PACKARD	Dec. 18, 08	Dec. 31, 09
Audio analyzer	8903B	2818A04372	HEWLETT PACKARD	Apr. 01, 09	Apr. 30, 10
Signal Generator	SMY01	71400014	ROHDE & SCHWARZ	Dec. 18, 08	Dec. 31, 09
Coaxial cable(R1)	5D-2W(10.0 m)	2R1001a	INTERTEK	May 20, 09	May 31, 10
Coaxial cable(R2)	RG-177/U(20.0 m)	2R1002	INTERTEK	May 20, 09	May 31, 10
Coaxial cable(R3)	RG-5A/U(1.3 m)	2R1003	INTERTEK	May 20, 09	May 31, 10
Coaxial cable(R4)	RG-5A/U(0.2 m)	2R1004	INTERTEK	May 20, 09	May 31, 10
Coaxial cable(R5)	5D-2W(0.7 m)	2R1005	INTERTEK	May 20, 09	May 31, 10
Coaxial cable(R6)	5D-2W(0.2 m)	2R1006	INTERTEK	May 20, 09	May 31, 10
Coaxial cable(R7)	5D-2W(1.7 m)	2R1007	INTERTEK	May 20, 09	May 31, 10
Coaxial cable(R8)	5D-2W(6.0 m)	2R1008a	INTERTEK	May 20, 09	May 31, 10
Coaxial cable(C001a)	5D-2W(18.0m)	C001a	INTERTEK	Nov. 06,09	Nov. 30, 10
Coaxial cable(RG1)	SUCOFLEX(1.5 m)	290799/4	SUHNER	Apr. 22, 09	Apr. 30, 10
Coaxial cable(RG2)	SUCOFLEX(6.0 m)	290800/4	SUHNER	Apr. 22, 09	Apr. 30, 10
Site Attenuation				Aug. 18, 09	Aug. 31, 10
Test receiver	ESS (Firmware Version 1.07)	842886/013	ROHDE & SCHWARZ	Jan. 07, 09	Jan. 31, 10
RF Switch	ACX-150	None	INTERTEK	May 20, 09	May 31, 10
Testing Software	emiT (Version 3,0,0,0)				

Note: Test instruments are calibrated according to Quality Manual and Calibration Rules of Intertek Japan K.K.