Test Report No. 7191109489-EEC15/02
dated 01 Apr 2015

PSB Singapore

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Note: This report is issued subject to the Testing and Certification Regulations of the TÜV SÜD Group and the General Terms and Conditions of Business of TÜV SÜD PSB Pte Ltd. In addition, this report is governed by the terms set out within this report.

FORMAL REPORT ON TESTING IN ACCORDANCE WITH
47 CFR FCC Part 24D
47 CFR FCC Part 90
RSS-119 Issue 11: 2011
RSS-134 Issue 1 Rev 1: 2000
OF A
2-WAY RADIO
[Model : H51VCH9PW7AN]
[FCC ID : AZ489FT7063]
[IC ID : 109U-89FT7063]

TEST FACILITY	TÜV SÜD PSB Pte Ltd Electrical & Electronics Centre (EEC), Product Services, No. 1 Science Park Drive, Singapore 118221
FCC REG. NO.	99142 (3m and 10m Semi-Anechoic Chamber, Science Park)
IND. CANADA REG. NO.	2932I-1 (3m and 10m Semi-Anechoic Chamber, Science Park)
PREPARED FOR	Motorola Solutions Malaysia Sdn Bhd Plot 2, Technoplex Industrial Park Mukim 12 Swd, Medan Bayan Lepas, Bayan Lepas Industrial Park, 11900 Bayan Lepas, Pulau Penang, Malaysia Tel : +604 2528543 Fax : +604 8503099
QUOTATION NUMBER	2191015220
JOB NUMBER	7191109489
TEST PERIOD	13 Mar 2015 – 01 Apr 2015

PREPARED BY

Quek Keng Huat
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Lim Cher Hwee
Assistant Vice President

TÜV SÜD PSB

ilac-MRA

ACCREDITED LABORATORY SAC-SINGLAS

LA-2007-0380-A
LA-2007-0381-F
LA-2007-0382-B
LA-2007-0382-B-1
LA-2007-0383-G
LA-2007-0383-G-1
LA-2007-0384-G
LA-2007-0385-E
LA-2007-0386-C
LA-2010-0464-D
FFT-2013-0002-A

The results reported herein have been performed in accordance with the laboratory's terms of accreditation under the Singapore Accreditation Council - Singapore Laboratory Accreditation Scheme. Tests/Calibrations marked "Not SAC-SINGLAS Accredited" in this Report are not included in the SAC-SINGLAS Accreditation Schedule for our laboratory.

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TABLE OF CONTENTS

TEST SUMMARY

The product was tested in accordance with the customer's specifications.

Test Results Summary

Test Standard	Description	Pass / Fail
47 CFR FCC Part 90, Part 24D & RSS-119 Issue 11: 2011 and RSS-134 Issue 1 Rev 1: 2000		
90.210, 24.133 RSS-119 Clause 5.8 RSS-134 Clause 6	Radiated Transmitter Unwanted Emission	Pass
47 CFR FCC Part 24D & RSS-134 Issue 1 Rev 1: 2000		
24.132(b) RSS-134 Clause 6.2	Equivalent Isotropically Radiated Power (EIRP)	Pass

Notes

1. All test measurement procedures are according to ANSI C63.4: 2009.

Modifications

No modifications were made.

PRODUCT DESCRIPTION

Description	:	The Equipment Under Test (EUT) is a **2-Way Radio.**
Applicant	:	Motorola Solutions Malaysia Sdn Bhd Plot 2, Technoplex Industrial Park Mukim 12 Swd, Medan Bayan Lepas, Bayan Lepas Industrial Park, 11900 Bayan Lepas, Pulau Penang, Malaysia
Manufacturer	:	Motorola Solutions Malaysia Sdn Bhd Plot 2, Technoplex Industrial Park Mukim 12 Swd, Medan Bayan Lepas, Bayan Lepas Industrial Park, 11900 Bayan Lepas, Pulau Penang, Malaysia
Factor (ies)	:	Motorola Solutions Malaysia Sdn Bhd Plot 2, Technoplex Industrial Park Mukim 12 Swd, Medan Bayan Lepas, Bayan Lepas Industrial Park, 11900 Bayan Lepas, Pulau Penang, Malaysia
Model Number	:	H51VCH9PW7AN
Regulatory ID	:	FCC: AZ489FT7063 and IC: 109U-89FT7063
Serial Number	:	Nil
Microprocessor	:	OMAP
Operating / Transmitting Frequency	:	Bluetooth 2.402GHz (lower channel) to 2.480GHz (upper channel) 79 channels. Land Mobile 806.0125MHz (lower channel) to 940.9875MHz (upper channel) 512 channels
Clock / Oscillator Frequency	:	TX: 806-825MHz, 851-870MHz, 896-902MHz, 935-941MHz RX LO: 960.65-979.65MHz, 825.35-831.35MHz
Modulation	:	Bluetooth Gaussian Frequency Shift Keying (GFSK) (π/4) DQPSK 8DPSK Land Mobile Frequency Modulation (FM)
Antenna Gain	:	AN000113A01, Bluetooth Antenna: 2.15dBi PMAF4020A, Land Mobile Antenna: 2.15dBi
Port / Connectors	:	Refer to manufacturer's user manual / operating manual
Rated Input Power	:	120V 60Hz
Accessories	:	Refer to manufacturer's user manual / operating manual

SUPPORTING EQUIPMENT DESCRIPTION

Equipment Description (Including Brand Name)	Model, Serial & FCC ID Number	Cable Description (List Length, Type & Purpose)
Lenovo Laptop	M/N: T400 S/N: R8-RZCLK FCC ID: DoC	Nil
Lenovo AC Adapter	M/N: 42T4424 S/N: 11S42T4424Z1ZF3E9BV2DD FCC ID: DoC	1.80m unshielded power cable

47 CFR FCC Part 90, Part 24D & RSS-119 and RSS-134
1. Radiated Unwanted Emissions **2. Equivalent Isotropically Radiated Power (EIRP)**
The EUT was exercised by operating in maximum continuous transmission in test mode.

47 CFR FCC Part 90.210, 24.133, RSS-119 Clause 5.8 and RSS-134 Clause 5.8 Radiated Transmitter Unwanted Emission Test Instrumentation

Instrument	Model	S/No	Cal Due Date	Cal Interval
Agilent Spectrum Analyzer	E7405A	MY45106084	01 Aug 2015	1 year
Schaffner Bilog Antenna –(30MHz-2GHz) BL4	CBL6112B	2593	13 Dec 2015	1 year
Com-Power Preamplifier (1MHz-1GHz)	PAM-103	441056	15 Aug 2015	1 year
Toyo Preamplifier	TPA0118036	00000005	16 Oct 2015	1 year
EMCO Horn Antenna (1GHz-18GHz)	3115	9901-5671	13 Mar 2016	1 year

47 CFR FCC Part 90.210, 24.133, RSS-119 Clause 5.8 and RSS-134 Clause 5.8 Radiated Transmitter Unwanted Emission Test Setup

1. The EUT and supporting equipment were set up as shown in the test setup photo. The test was conducted in an anechoic chamber under the normal test condition.
2. The EUT was connected to an appropriate power source while all other supporting equipment were powered separately from another power source.
3. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were set accordingly as per in the test requirement.
4. All other supporting equipment were powered separately from another filtered mains.

47 CFR FCC Part 90.210, 24.133, RSS-119 Clause 5.8 and RSS-134 Clause 5.8 Radiated Transmitter Unwanted Emission Test Method

1. The EUT was set to transmit at the maximum power at the lower operating frequency with the modulation on at normal test condition.
2. The receiving antenna (test antenna) was set at vertical polarization with the height of 1m.
3. With the spectrum analyser was set to max hold enabled (peak detector mode), the emissions outside the operating frequency range (spurious emissions) that exceeded the allowable limits or come to within 6dB below the limit were searched and recorded.
4. For each spurious emission found, the test antenna was raised or lowered through the specified range of heights (1m – 4m) until a maximum signal level was detected on the test receiver.
5. The EUT was then rotated through 360º in the horizontal plane until the maximum signal was received. The maximum received signal level was recorded as A (in dBm).
6. The EUT was replaced with the substitution antenna with the antenna input was connected to the signal generator via a 10dB attenuator (if required).
7. The signal generator was set to the found spurious frequency. The output level of the signal generator was adjusted until the test receiver was at least 20dB above the level when the signal generator was switched off.
8. The test antenna was raised and lowered through the specified range of heights (1m – 4m) until the maximum signal level was received on the test receiver.
9. The substitution antenna was rotated until the maximum level was detected on the test receiver.
10. The output level of the signal generator was adjusted until the received signal level at the test receiver was equal to the level recorded in step 6 (A dBm). The signal generator output level was recorded as B (in dBm).
11. The spurious emission level, P (e.r.p / e.i.r.p) was computed as followed:

P (e.i.r.p)		=	B – C – D + E
P (e.r.p)		=	P (e.i.r.p) – 2.15
where	C	=	cable loss between the signal generator and the substitution
	D	=	attenuation level if attenuator is used
	E	=	substitution antenna gain

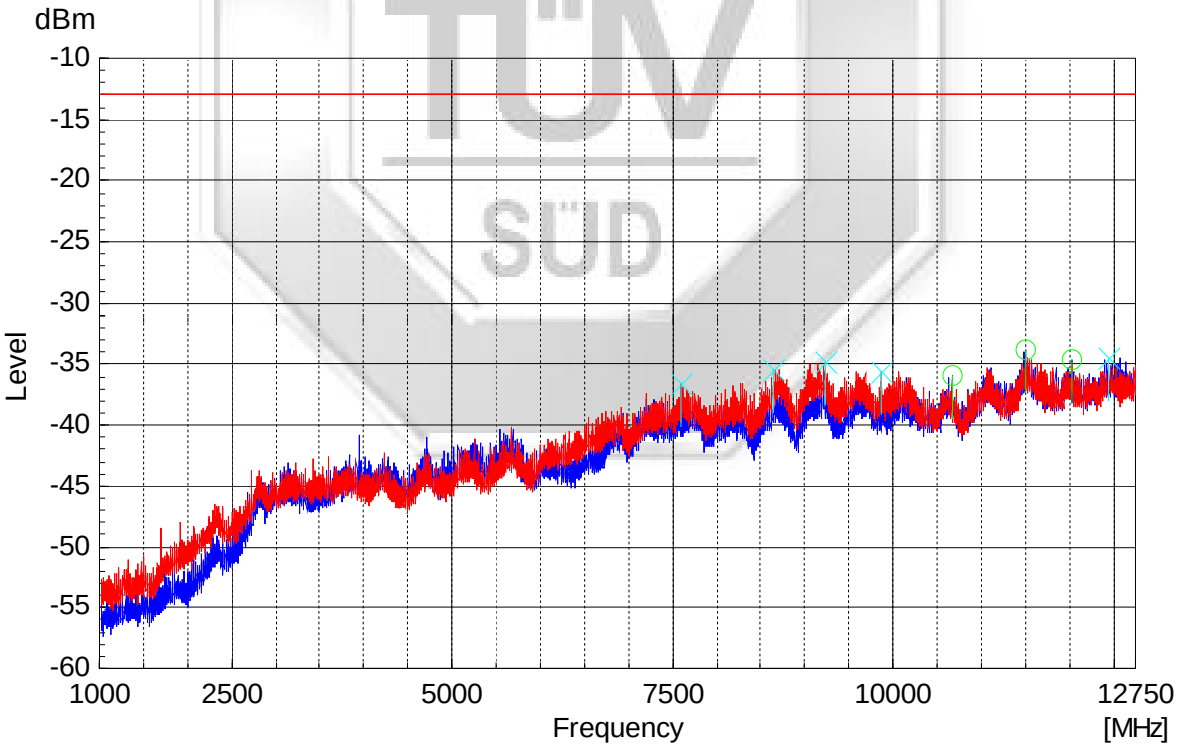
12. The steps 2 to 11 were repeated with the receiving antenna was set to horizontal polarization.
13. Comparison was made on both measured results with vertical and horizontal polarizations. The highest value out of vertical and horizontal polarizations was recorded.
14. The steps 2 to 13 were repeated until all the spurious emissions were measured.
15. The steps 1 to 14 were repeated with the EUT was set to operate at the upper operating frequency.

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

806.0125MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
6495.4430	-33.8	-13.0
6518.6240	-34.0	-13.0
7146.5670	-35.6	-13.0
7441.5390	-34.4	-13.0
8026.6080	-35.0	-13.0
8030.0670	-34.5	-13.0



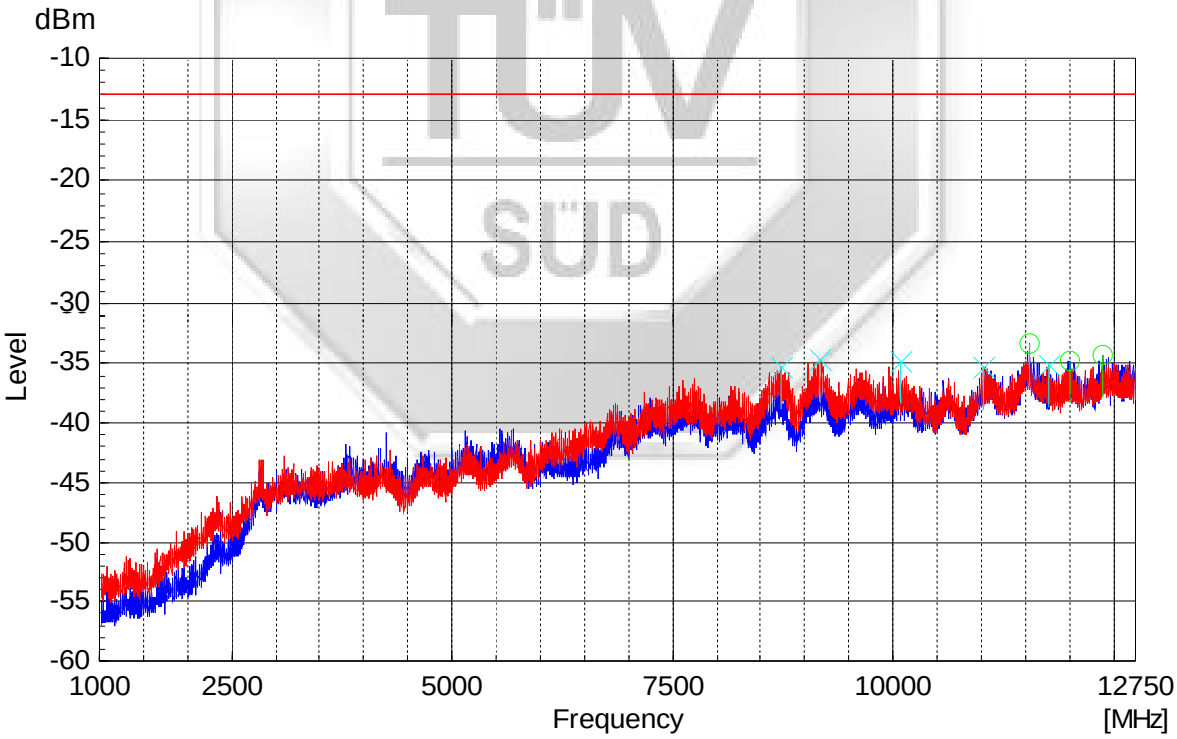
806.0125MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

814.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
8722.5320	-34.8	-13.0
9159.3520	-34.3	-13.0
10086.8150	-35.1	-13.0
11020.9472	-34.8	-13.0
11543.6355	-35.1	-13.0
11770.1240	-34.8	-13.0



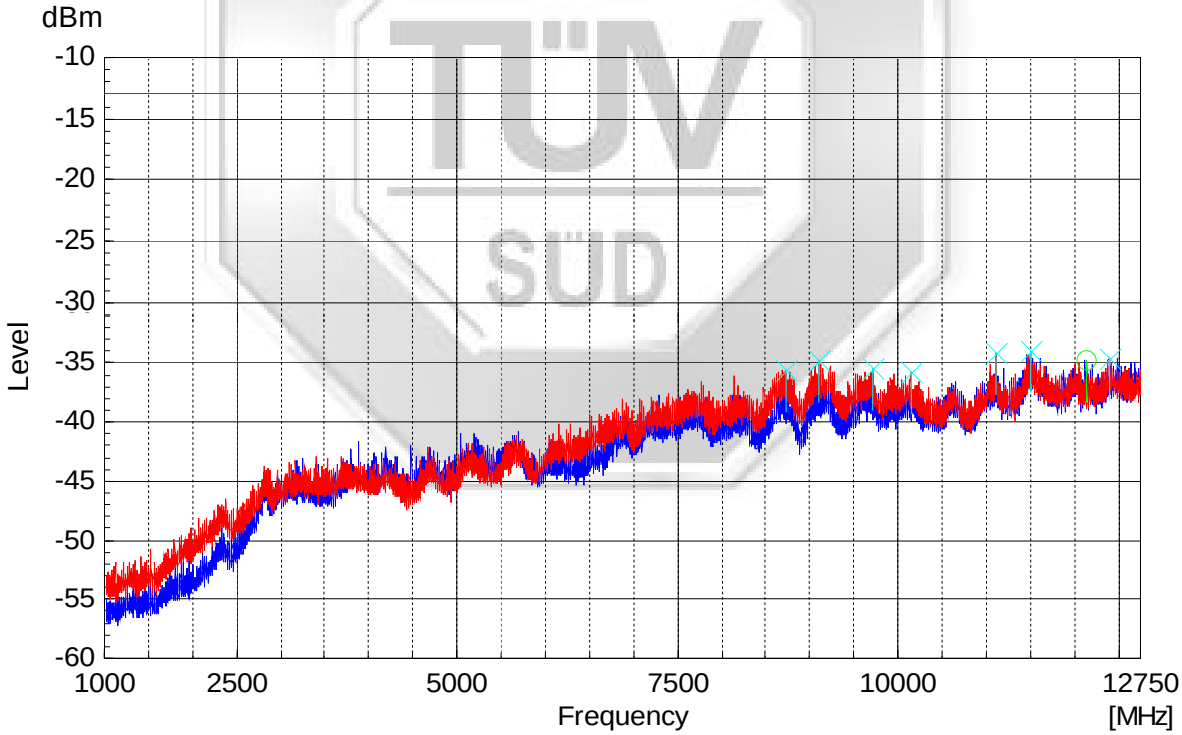
814.9875MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

823.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
6445.8860	-34.3	-13.0
7110.0500	-34.1	-13.0
7999.7890	-33.9	-13.0
8008.3340	-34.6	-13.0
8015.5790	-34.7	-13.0
8187.9320	-34.3	-13.0



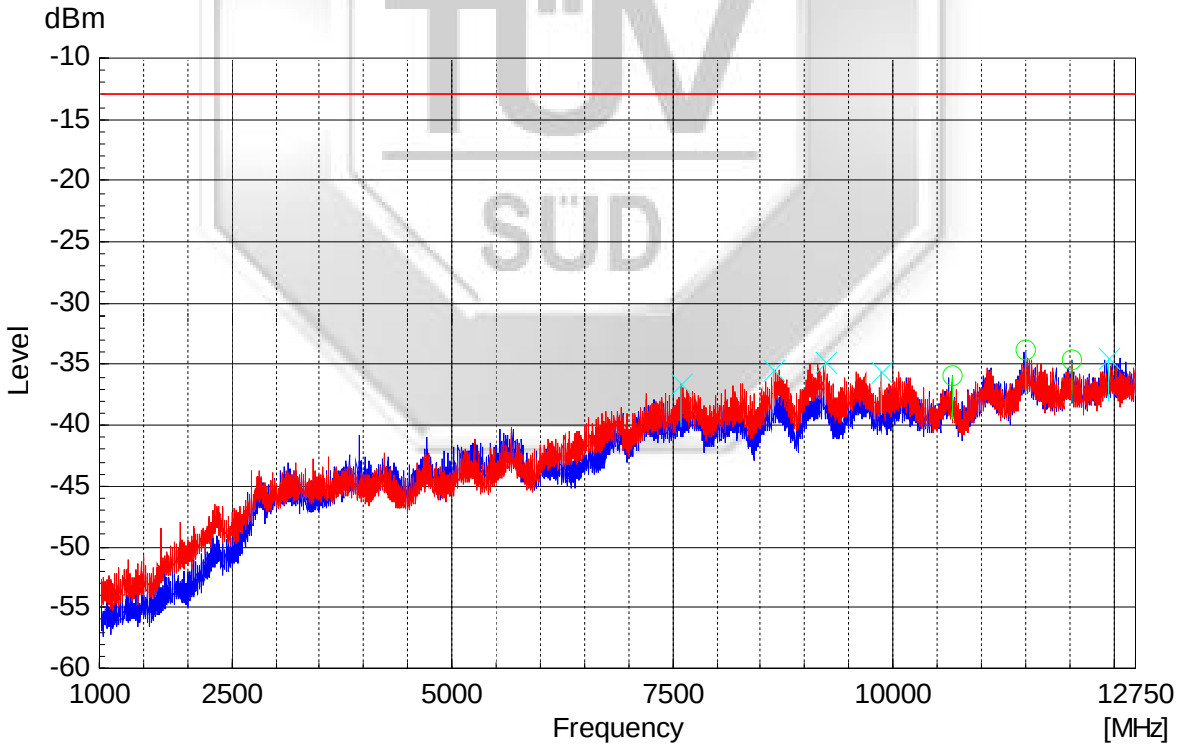
823.9875MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

851.0125MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
5652.8060	-35.4	-13.0
6665.2540	-35.9	-13.0
7589.3530	-36.6	-13.0
7864.0420	-35.6	-13.0
8019.9250	-34.6	-13.0
8227.9980	-34.8	-13.0



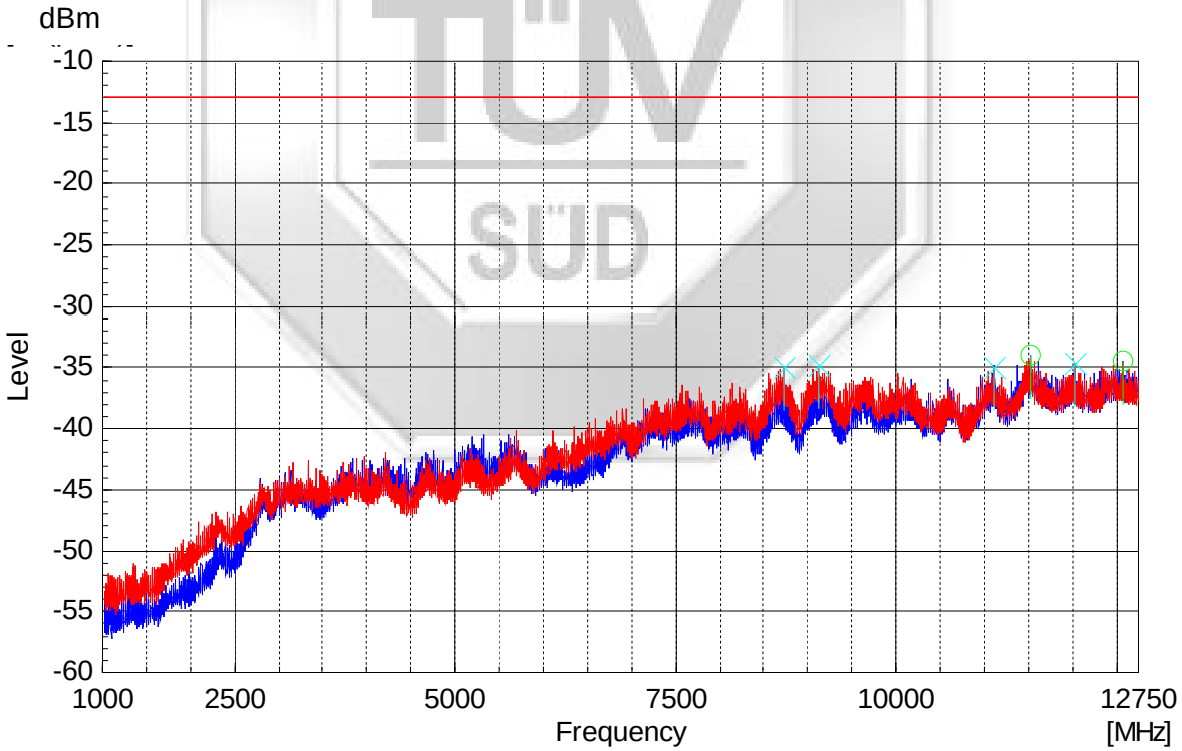
851.0125MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

860.0125MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
12570.9250	-34.5	-13.0
9119.9980	-34.8	-13.0
8736.8060	-34.9	-13.0
11115.0420	-35.0	-13.0
10024.2540	-35.5	-13.0
10589.3530	-35.9	-13.0



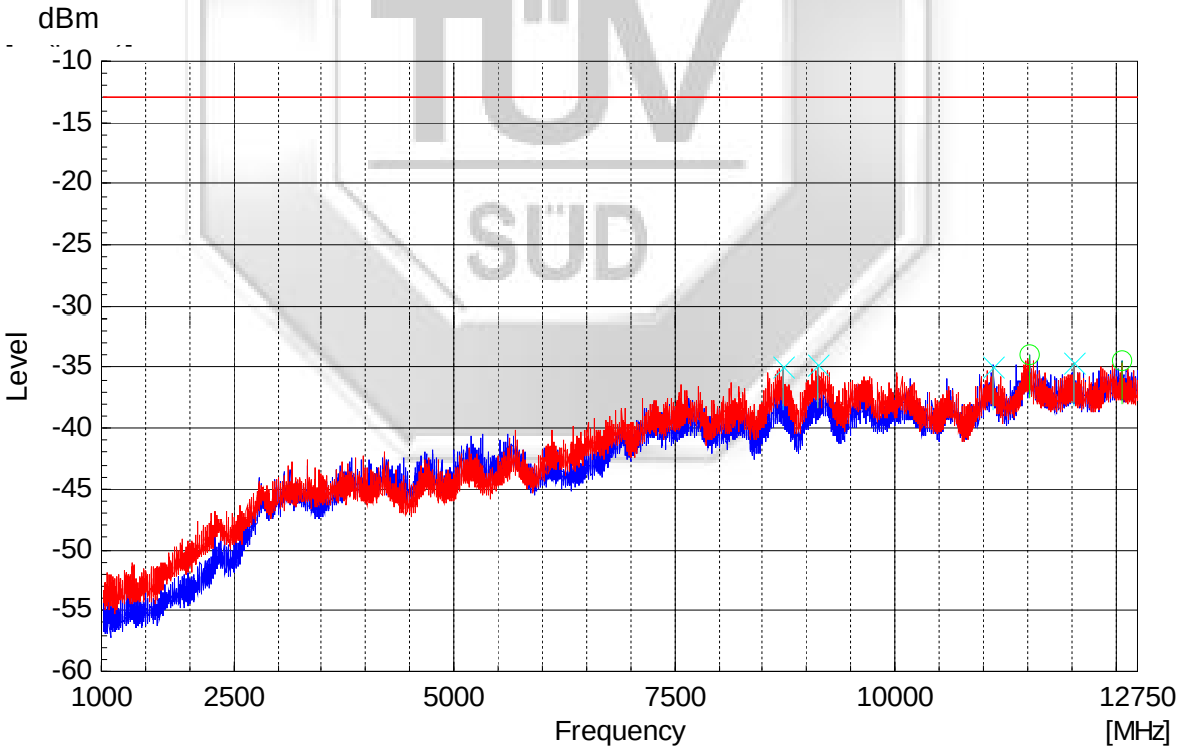
860.0125MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

868.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
6570.4870	-34.5	-13.0
7115.8450	-35.0	-13.0
7736.8400	-34.9	-13.0
8024.8640	-35.5	-13.0
8119.3350	-34.8	-13.0
8589.9140	-35.9	-13.0



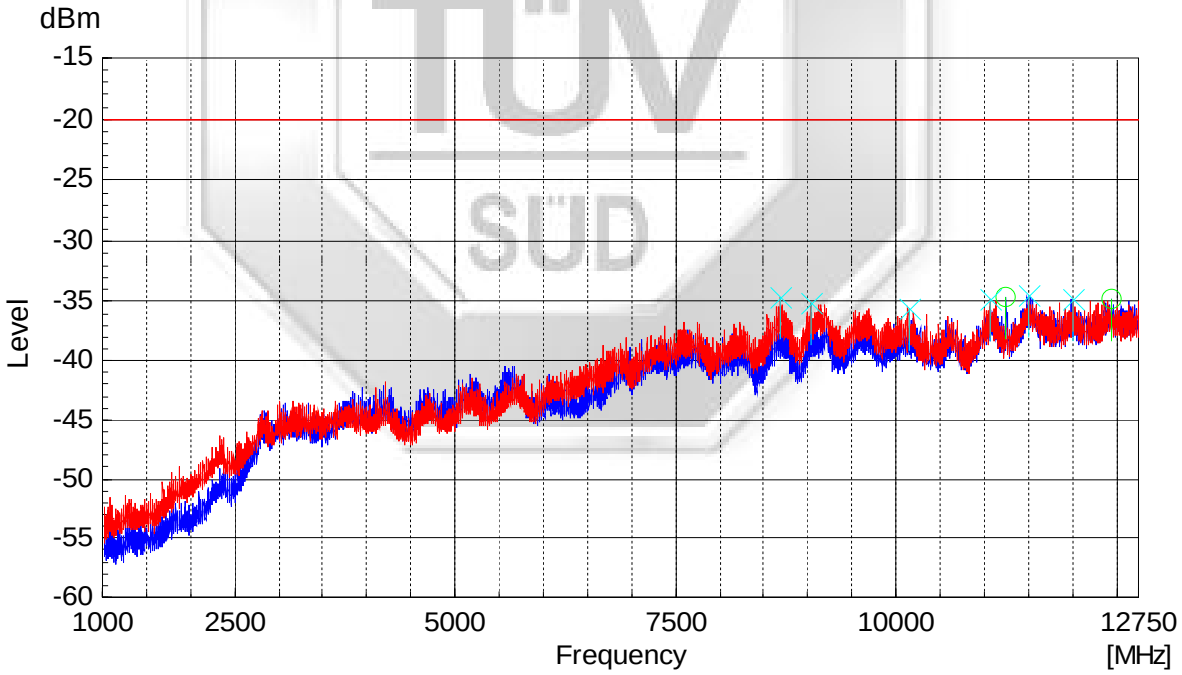
868.9875MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

896.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
7447.3350	-34.8	-20.0
7895.4430	-34.5	-20.0
8065.1350	-34.7	-20.0
8253.4850	-34.7	-20.0
8683.2320	-34.6	-20.0
8914.1300	-34.7	-20.0



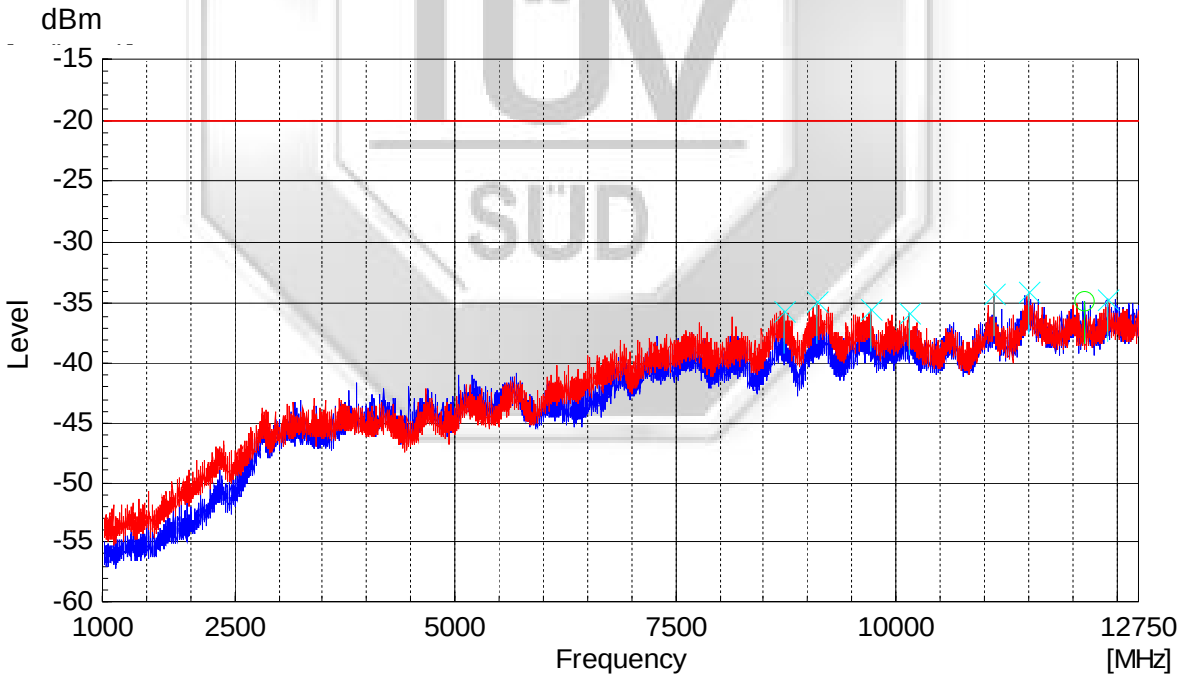
896.9875MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

900.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
8738.2880	-35.6	-20.0
9110.6420	-34.8	-20.0
9722.0550	-35.4	-20.0
10140.7710	-35.7	-20.0
12148.8720	-34.7	-20.0
12400.9720	-34.7	-20.0



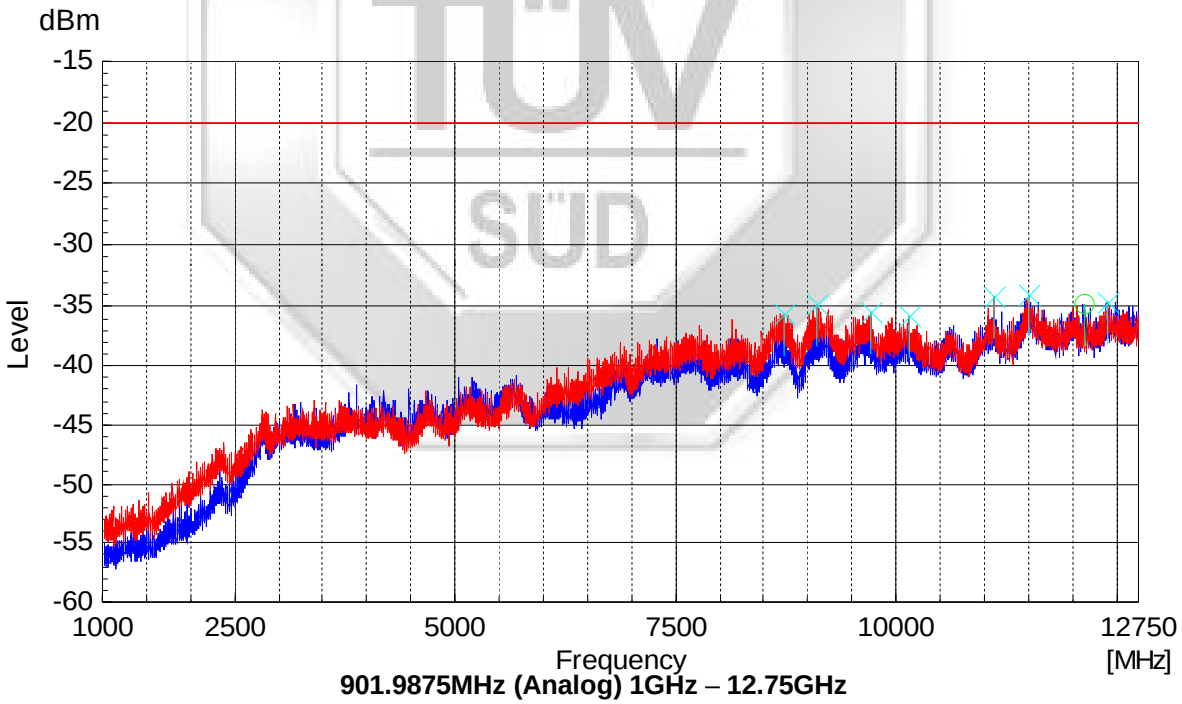
900.9875MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 24.133 and RSS-134 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

901.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
6140.7710	-35.7	-20.0
6722.0550	-35.4	-20.0
7148.8720	-34.7	-20.0
7400.9720	-34.7	-20.0
8110.6420	-34.8	-20.0
8738.2880	-35.6	-20.0



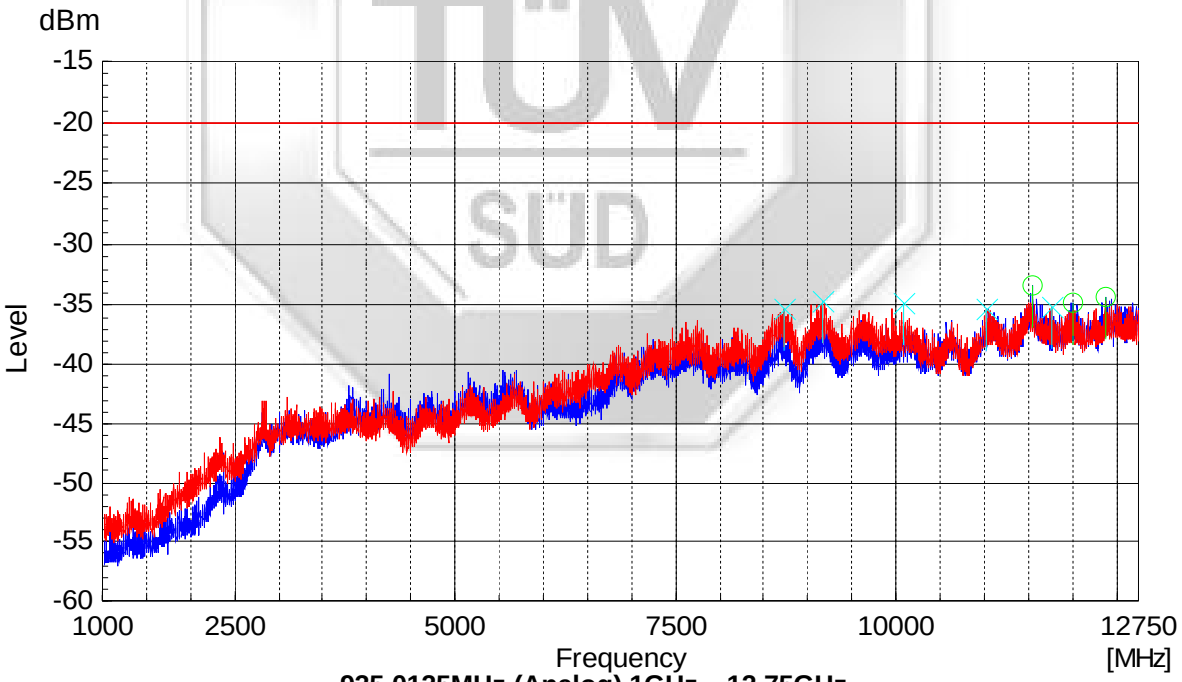
901.9875MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

935.0125MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
6770.7240	-35.0	-20.0
7543.2550	-33.2	-20.0
8018.7720	-35.2	-20.0
8720.9020	-35.3	-20.0
9085.7150	-34.7	-20.0
9158.4540	-34.5	-20.0



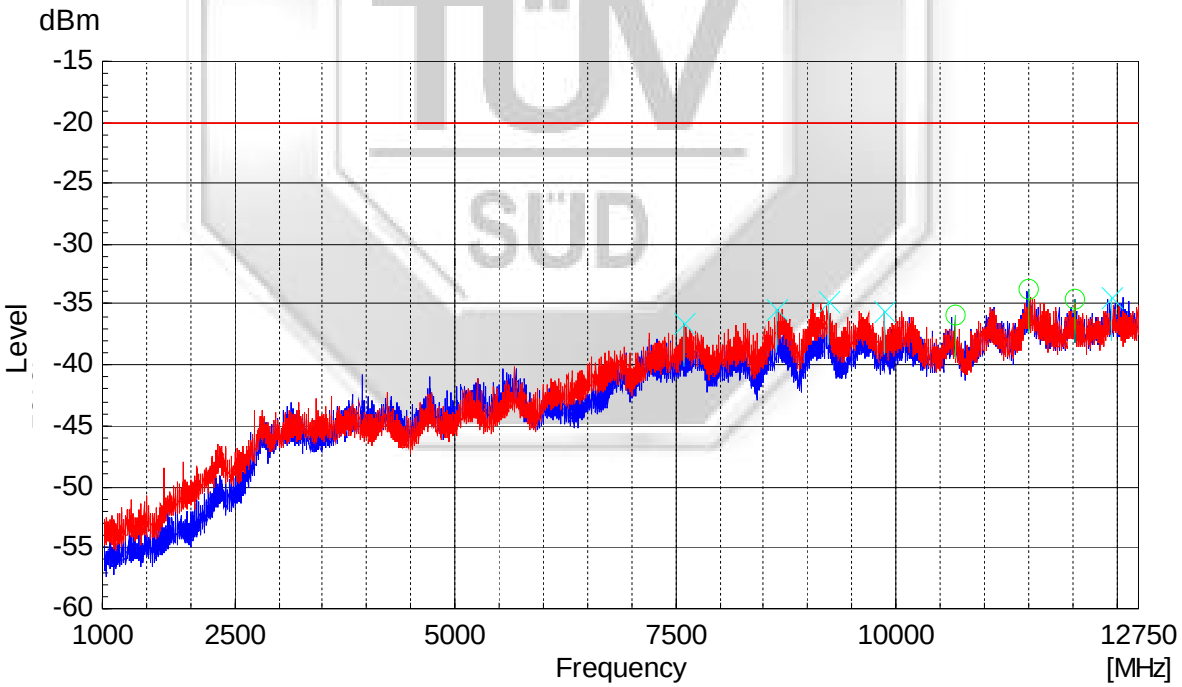
935.0125MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

939.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
7589.3530	-36.6	-20.0
8652.8060	-35.4	-20.0
9227.9980	-34.8	-20.0
9864.0420	-35.6	-20.0
10665.2540	-35.9	-20.0
12019.9250	-34.6	-20.0



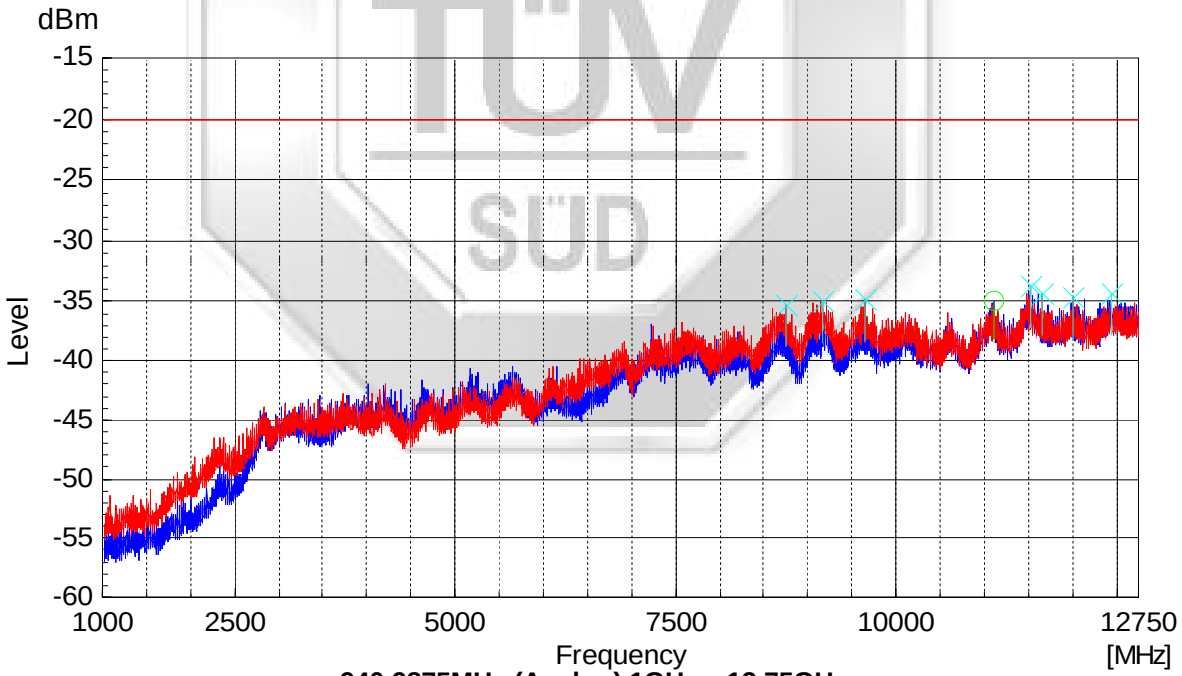
939.9875MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 24.133 and RSS-134 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation	Analog	Tested By	Stephen Chng, Li Chelmin

940.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
6518.6240	-33.6	-20.0
7659.1620	-34.3	-20.0
8745.5320	-35.3	-20.0
9112.9470	-35.0	-20.0
9261.3520	-34.9	-20.0
9343.8170	-34.8	-20.0



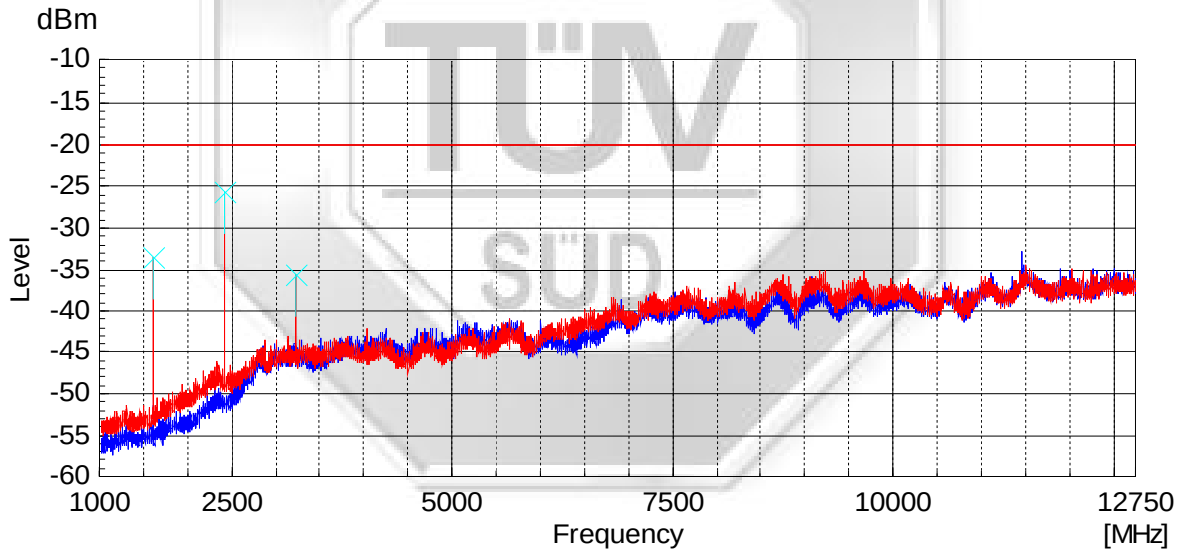
940.9875MHz (Analog) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation Type	Digital	Tested By	Stephen Chng, Li Chelmin

806.0125MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
1612.8620	-33.5	-20.0
2418.4210	-25.7	-20.0
3223.9790	-35.7	-20.0
5652.8060	-35.4	-20.0
7961.3520	-34.9	-20.0
8043.8170	-34.8	-20.0



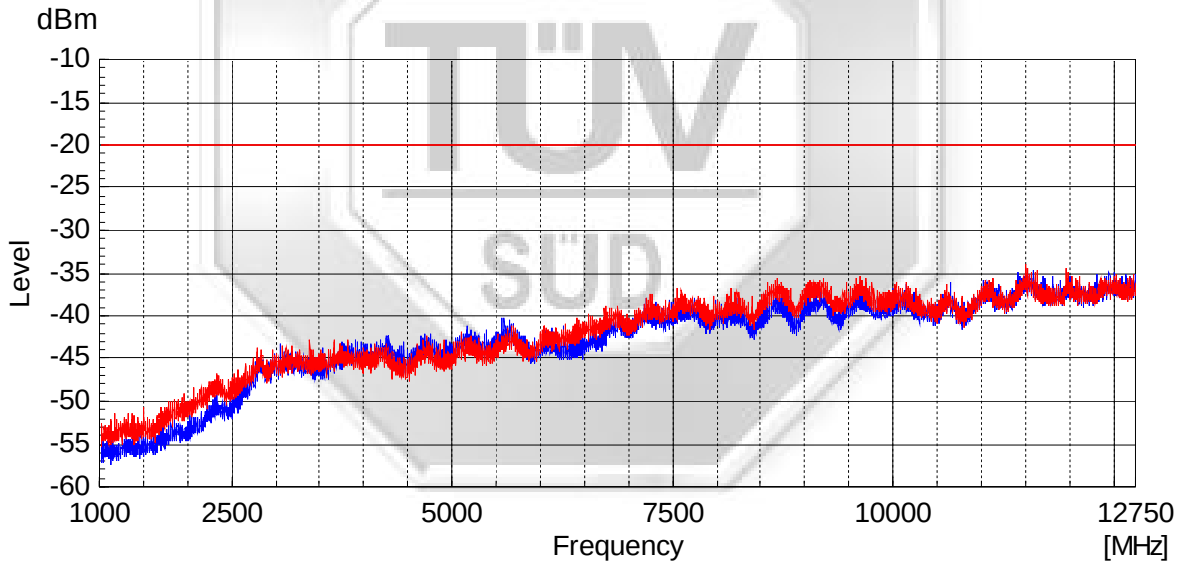
806.0125MHz (Digital) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation Type	Digital	Tested By	Stephen Chng, Li Chelmin

814.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
2641.421	-45.3	-20.0
3223.197	-43.7	-20.0
5652.788	-40.4	-20.0
7551.862	-43.4	-20.0
7961.315	-44.9	-20.0
8043.557	-45.8	-20.0



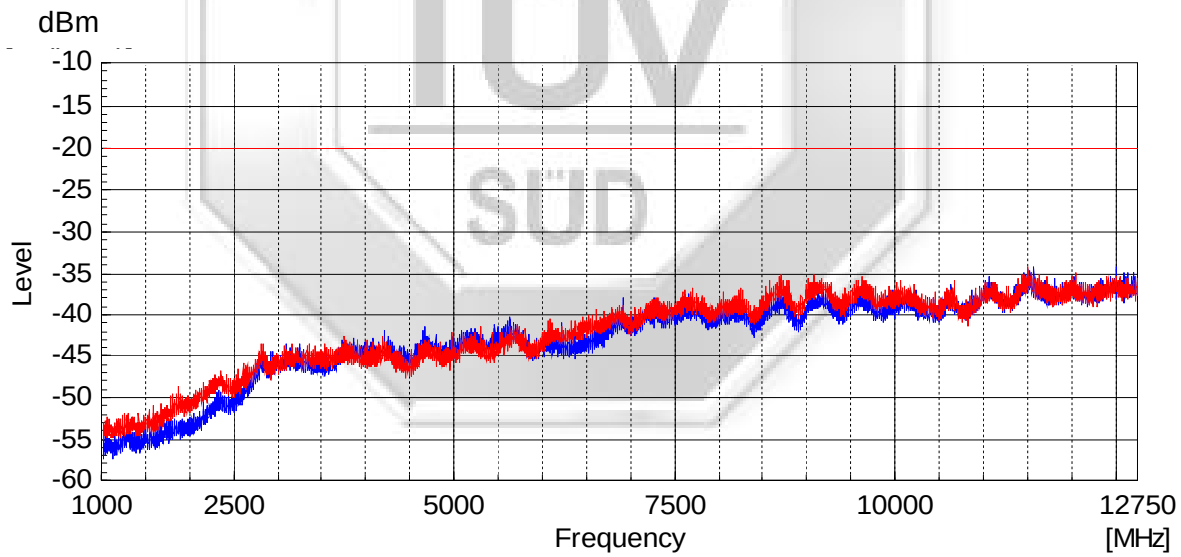
814.9875MHz (Digital) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation Type	Digital	Tested By	Stephen Chng, Li Chelmin

851.0125MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
2828.4440	-43.4	-20.0
6140.7710	-35.7	-20.0
7632.2260	-35.4	-20.0
8019.9250	-34.6	-20.0
8338.2880	-35.6	-20.0
8499.1700	-35.2	-20.0



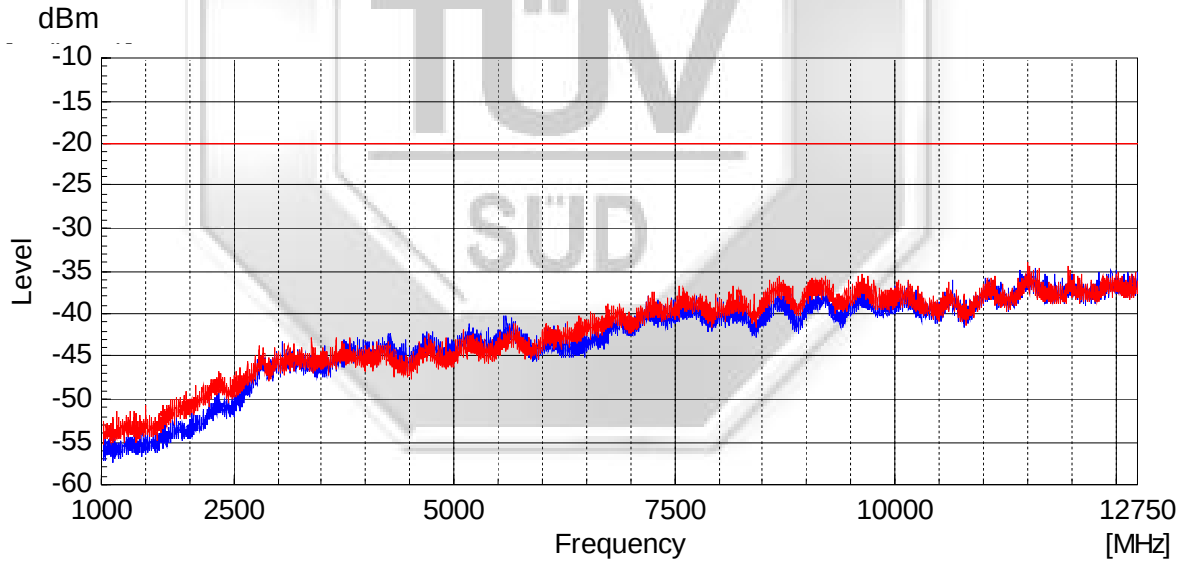
851.0125MHz (Digital) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation Type	Digital	Tested By	Stephen Chng, Li Chelmin

860.0125MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
8745.4444	-35.3	-20.0
9161.7710	-34.9	-20.0
9643.2260	-34.8	-20.0
11112.9250	-35.0	-20.0
11518.2880	-33.6	-20.0
11659.1700	-34.3	-20.0



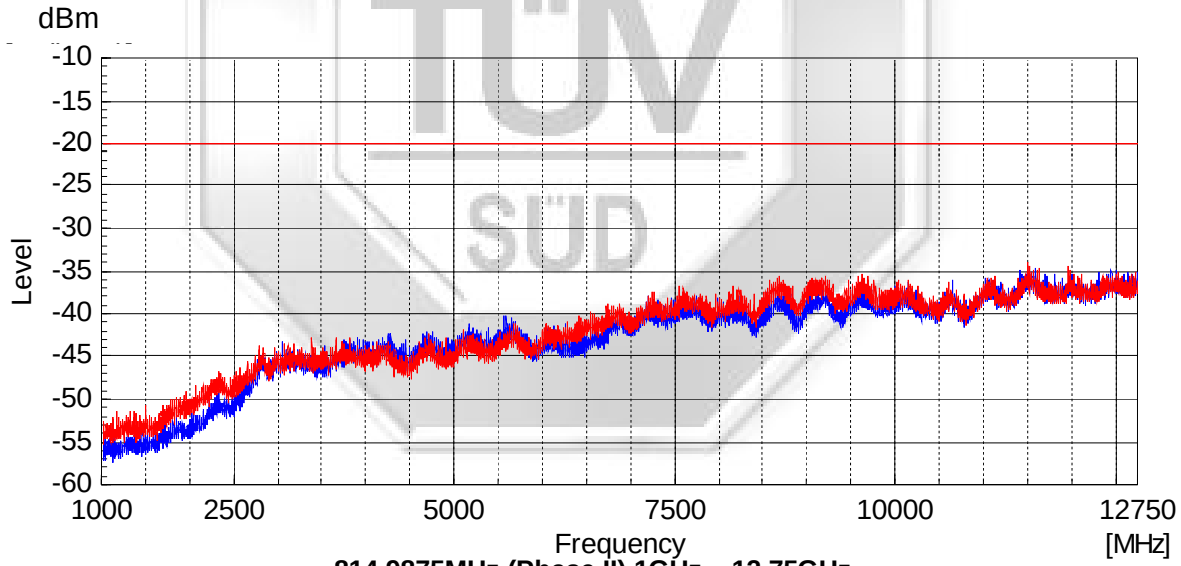
860.0125MHz (Digital) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation Type	Phase II	Tested By	Stephen Chng, Li Chelmin

814.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
7296.8472	-34.7	-20.0
7472.3028	-34.5	-20.0
7518.1624	-35.2	-20.0
7647.8722	-35.3	-20.0
8026.6085	-33.2	-20.0
8130.1067	-35.0	-20.0



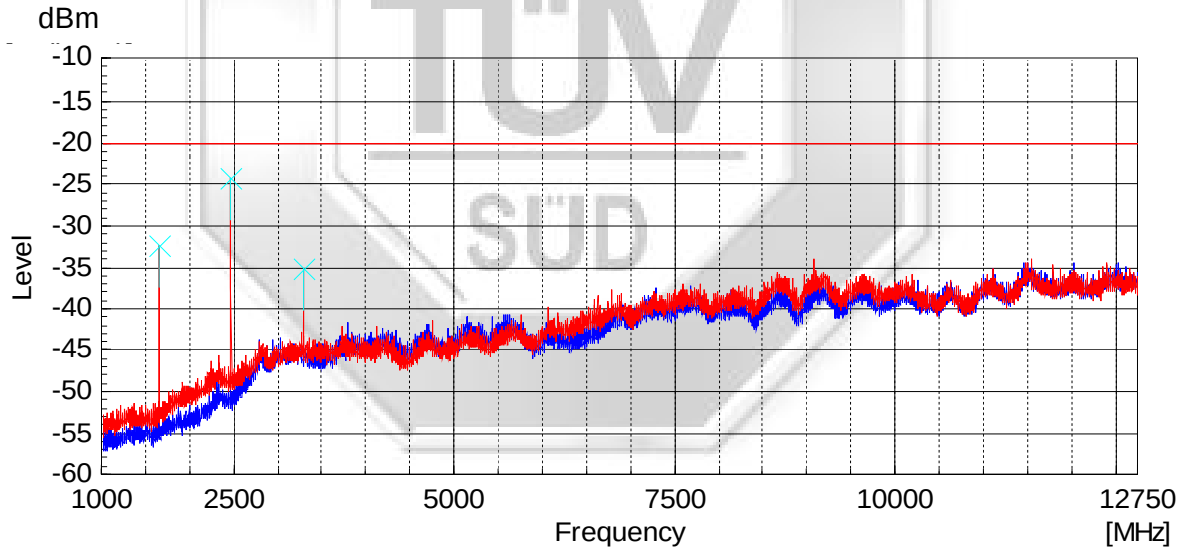
814.9875MHz (Phase II) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation Type	Phase II	Tested By	Stephen Chng, Li Chelmin

823.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
1647.6340	-32.4	-20.0
2472.0280	-24.2	-20.0
3296.4220	-35.0	-20.0
7518.6240	-34.0	-20.0
8026.6080	-35.0	-20.0
8130.0670	-34.5	-20.0



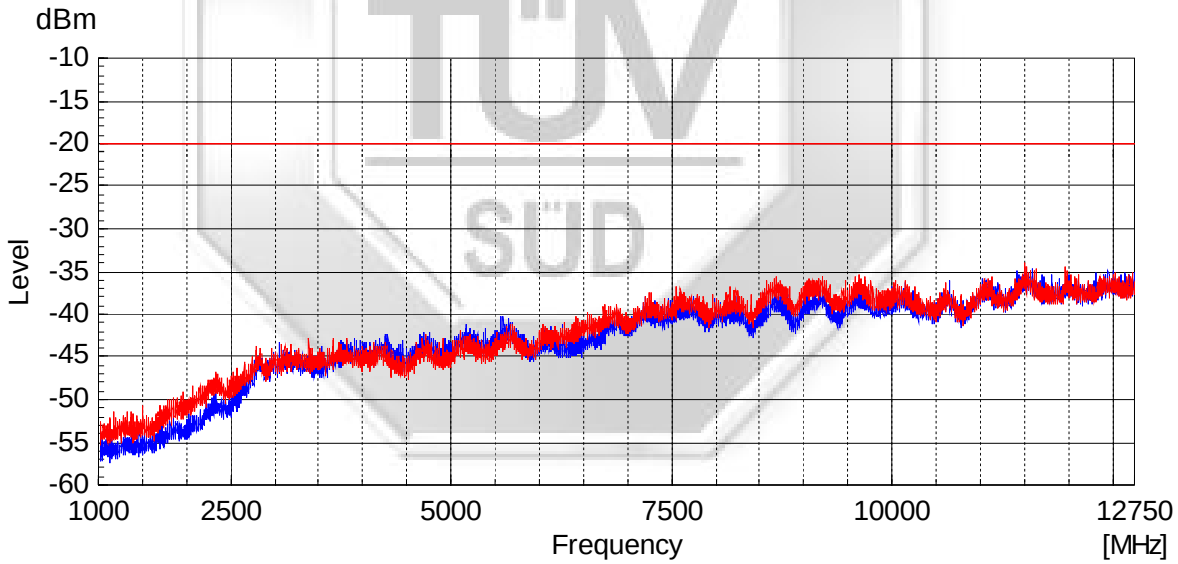
823.9875MHz (Phase II) 1GHz – 12.75GHz

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation Type	Phase II	Tested By	Stephen Chng, Li Chelmin

860.0125MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
8736.7880	-34.9	-20.0
9119.3150	-34.8	-20.0
10024.7543	-35.5	-20.0
10589.6830	-35.9	-20.0
11115.7240	-35.0	-20.0
12570.3076	-34.5	-20.0



860.0125MHz (Phase II) 1GHz – 12.75GHz

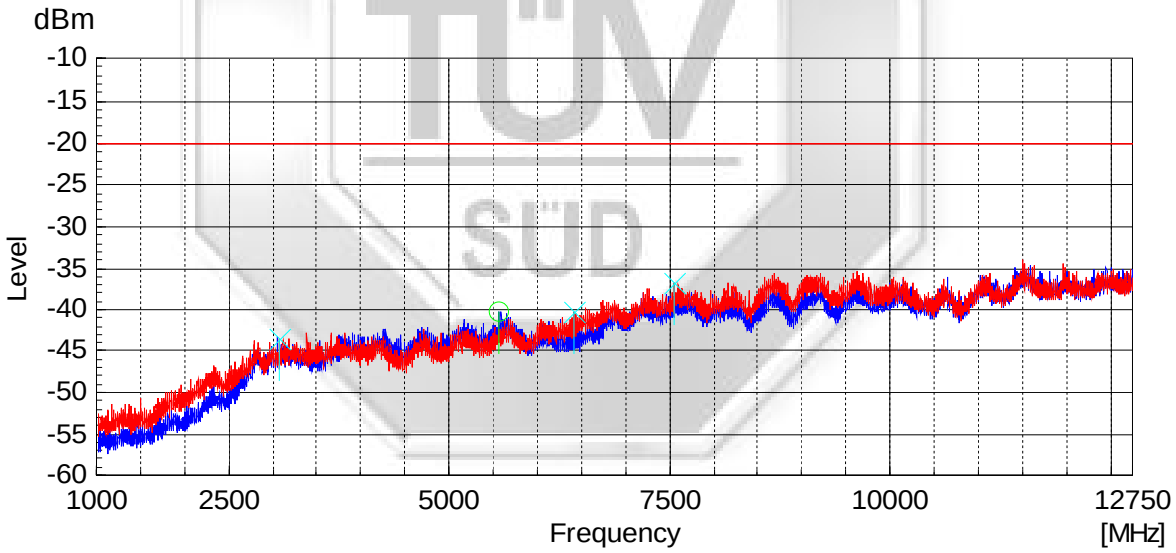
RADIATED TRANSMITTER UNWANTED EMISSION TEST

47 CFR FCC Part 90.210 and RSS-119 Clause 5.8 Radiated Transmitter Unwanted Emission Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
Modulation Type	Phase II	Tested By	Stephen Chng, Li Chelmin

868.9875MHz

Frequency (MHz)	Amplitude (dBm)	Limit (dBm)
3076.1970	-43.5	-20.0
5565.3150	-40.3	-20.0
6415.7880	-40.3	-20.0
6770.7240	-35.0	-20.0
7543.2550	-33.2	-20.0
8551.6830	-36.8	-20.0



868.9875MHz (Phase II) 1GHz – 12.75GHz

Notes

1. All possible modes of operation were investigated. Only the worst case emissions measured were reported. All other emissions were relatively insignificant.
2. The transmitting antenna was found to be in the worst case condition when it was orientated in a vertical position.
3. A "positive" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency. Conversely, a “negative” margin indicates a FAIL.
4. EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:
   30MHz - 1GHz
   RBW: 100kHz VBW: 1MHz
   >1GHz
   RBW: 1MHz VBW: 1MHz
5. Radiated Transmitter Unwanted Emissions Test Measurement Uncertainty
   All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of 95%, with a coverage factor of 2 is ±4.0dB.

EQUIVALENT ISOTROPICALLY RADIATED POWER (EIRP) TEST

47 CFR FCC Parts 24.132(b) & RSS-134 Carrier Output Power Limits

The EUT shows compliance to the requirements of this section, which states the EUT transmitting in the 930-931MHz & 940-941MHz bands are limited to 7W (e.r.p).

47 CFR FCC Parts 24.132(b) & RSS-134 Carrier Output Power Test Instrumentation

Instrument	Model	S/No	Cal Due Date	Cal Interval
Agilent Spectrum Analyzer	E7405A	MY45106084	01 Aug 2015	1 year
Schaffner Bilog Antenna –(30MHz-2GHz) BL4	CBL6112B	2593	13 Dec 2015	1 year
Com-Power Preamplifier (1MHz-1GHz)	PAM-103	441056	15 Aug 2015	1 year
Toyo Preamplifier	TPA0118036	00000005	16 Oct 2015	1 year
EMCO Horn Antenna (1GHz-18GHz)	3115	9901-5671	13 Mar 2016	1 year

47 CFR FCC Parts 24.132(b) & RSS-134 Carrier Output Power Test Setup

1. The EUT and supporting equipment were set up as shown in setup photo.
2. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable.
3. The relevant broadband antenna was set at the required test distance away from the EUT and supporting equipment boundary.

47 CFR FCC Parts 24.132(b) & RSS-134 Carrier Output Power Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. Set the EUT to transmit at lower operating frequency (lower channel).
3. A prescan was carried out to pick the carrier frequency. For EUT which is a portable device, the prescan was carried out by rotating the EUT through three orthogonal axes to determine which altitude and equipment arrangement produces the highest emissions.
4. The test was carried out at the selected carrier frequency obtained from the prescan. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
   a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
   b. The EUT was then rotated to the direction that gave the maximum emission.
   c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
5. The peak value of the selected carrier frequency was recorded.
6. The EUT was replaced with the substitution antenna and the antenna input was connected to a RF signal generator.
7. The signal generator frequency was set to the found carrier frequency. The output level of the signal generator was adjusted until the received signal level at the test receiver was equal to the level recorded in step 5. The signal generator output level was recorded.
8. The output power (EIRP) of the carrier was the signal generator level, corrected for the gain of the substitution antenna.
9. The measurement was repeated with the EUT sets to middle and upper operating frequencies respectively.

EQUIVALENT ISOTROPICALLY RADIATED POWER (EIRP) TEST

47 CFR FCC Parts 24.132(b) & RSS-134 Carrier Output Power Test Results

Operating Mode	Transmit	Temperature	24°C
Test Input Power	7.6Vdc	Relative Humidity	60%
Test Distance	3m	Atmospheric Pressure	1030mbar
		Tested By	Stephen Chng, Li Chelmin

Frequency (MHz)	Channel Bandwidth (kHz)	Measured Output Power (W / ERP)	Limit (W / ERP)	Modulation Type
901.9875	12.5	2.3	7.0	Analog
935.0125	12.5	2.6	7.0	Analog
940.9875	12.5	2.7	7.0	Analog

Please note that this Report is issued under the following terms :

1. This report applies to the sample of the specific product/equipment given at the time of its testing/calibration. The results are not used to indicate or imply that they are applicable to other similar items. In addition, such results must not be used to indicate or imply that TÜV SÜD PSB approves, recommends or endorses the manufacturer, supplier or user of such product/equipment, or that TÜV SÜD PSB in any way "guarantees" the later performance of the product/equipment. Unless otherwise stated in this report, no tests were conducted to determine long term effects of using the specific product/equipment.

2. The sample/s mentioned in this report is/are submitted/supplied/manufactured by the Client. TÜV SÜD PSB therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.

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5. Unless otherwise stated, the tests were carried out in TÜV SÜD PSB Pte Ltd, No.1 Science Park Drive Singapore 118221.

July 2011

ANNEX A

TEST SETUP / EUT PHOTOGRAPHS / DIAGRAMS

TEST SETUP

Transmitter Spurious Emissions (Radiated) Test Setup

Carrier Output Test Setup

EUT PHOTOGRAPHS

Front View

Rear View

EUT PHOTOGRAPHS

Front View

Rear View

EUT PHOTOGRAPHS – Battery

Front View

Rear View

EUT PHOTOGRAPHS – LMR Antenna (PMAF 4020A)

Front View

ANNEX B

USER MANUAL
TECHNICAL DESCRIPTION
BLOCK & CIRCUIT DIAGRAMS

(Please refer to manufacturer for details)

ANNEX C

FCC & IC LABELS & POSITIONS

(Please refer to manufacturer for details)