

 MOTOROLA SOLUTIONS	 MS ISO/IEC 17025 TESTING SAMM No. 0825																															
MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia SDN BHD, Innoplex, Plot 2A, Medan Bayan Lepas, Mukim 12 S.W.D, 11900 Bayan Lepas, Penang, Malaysia.	FCC / IC TEST REPORT Report Revision : Rev.A																															
<table border="0"> <tr> <td>Date/s Tested</td> <td>: 28-August-2018 - 6-September-2018</td> <td rowspan="11">  </td> </tr> <tr> <td>Report Issue Date</td> <td>: 18-September-2018</td> </tr> <tr> <td>Manufacturer</td> <td>: Motorola Solutions Malaysia SDN BHD</td> </tr> <tr> <td>Manufacturer Address</td> <td>: Plot 2, Bayan Lepas Technoplex, 11900 Bayan Lepas, Penang, Malaysia</td> </tr> <tr> <td>Requestor</td> <td>: SUNDRA LINGAM A/L SEL VARAJOO</td> </tr> <tr> <td>Product Type</td> <td>: Portable</td> </tr> <tr> <td>Model Number</td> <td>: DTS150NBDLAA</td> </tr> <tr> <td>Frequency Band</td> <td>: 902 - 928 MHz</td> </tr> <tr> <td>Max RF Output Power</td> <td>: 1 Watt</td> </tr> <tr> <td>Applicant Name</td> <td>: Motorola Solutions Inc.</td> </tr> <tr> <td>Firmware Version</td> <td>: D00.00.15</td> </tr> <tr> <td>FCC Registrations</td> <td>: 461337</td> <td></td> </tr> <tr> <td>IC Registrations</td> <td>: 109AK</td> <td></td> </tr> </table> The equipment was tested in accordance to the requirement(s) listed below: <table border="0"> <tr> <td> (900MHz ISM) Part 15C ISED RSS-GEN/247 </td> <td>PASS</td> </tr> </table>		Date/s Tested	: 28-August-2018 - 6-September-2018		Report Issue Date	: 18-September-2018	Manufacturer	: Motorola Solutions Malaysia SDN BHD	Manufacturer Address	: Plot 2, Bayan Lepas Technoplex, 11900 Bayan Lepas, Penang, Malaysia	Requestor	: SUNDRA LINGAM A/L SEL VARAJOO	Product Type	: Portable	Model Number	: DTS150NBDLAA	Frequency Band	: 902 - 928 MHz	Max RF Output Power	: 1 Watt	Applicant Name	: Motorola Solutions Inc.	Firmware Version	: D00.00.15	FCC Registrations	: 461337		IC Registrations	: 109AK		(900MHz ISM) Part 15C ISED RSS-GEN/247	PASS
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Prepared By:  Gan Boon Teong Test Personnel	Approved By:  Vincent Foong Responsible Engineer																															

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REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	18-September-2018	Gan Boon Teong

1.0. General Information

EUT Description:

Technologies	900MHz ISM
TX Frequency range	902MHz – 928MHz
Modulation Type	8FSK
No of Hopset	10
No of Channel Per Hopset	50
Input/Output	RF port
Connector type	PROGRAMMING
Antenna type	Handset Antenna
Antenna Gain	2.15 dBi

General Description of Applied Standards

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

ANSI C63.10-2013

2.0. Summary of Test Results

FCC Clause	IC Clause	Test Item	Result	Remark
15.247 (b)(2)	RSS-247 5.4(1)	Conducted RF Output Power (Peak) & EIRP Measurement	Pass	Highest output power: 31.4 dBm
15.247 (a)(1)	RSS-247 5.1(3) RSS-247 5.1(2)	(1) 20dB Channel Bandwidth (2) Channel Separation	Pass	Emission designator 26K4F1D
15.247(a)(1)(i)	RSS-247 5.1(3)	Number of hopping Frequency used	Pass	NA
15.247(a)(1)(i)	RSS-247 5.1(3)	Dwell time on each channel	Pass	NA
15.247 (d)	RSS-247 5.5	Band Edge Conducted Spurious Emission	Pass	Worst case emission: -43.5 dBm
15.247 (d)	RSS-247 5.5	Conducted Spurious Emission	Pass	Worst case emission: -31.3 dBm
15.205, 15.209, 15.247 (d)	RSS-247 5.5	Radiated Emission within Restricted Bands	Pass	Worst case emission: 49.7 dB μ V/m
15.207	RSS-Gen 8.8	AC Powerline Conducted Emission	NA	Testing is not required, radio shall turn off during charging mode

3.0. Measurement Uncertainty

Measurement	Frequency	Expanded Uncertainty (k=1.96) ($\pm$)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.43
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	5.01
	200MHz ~ 1000MHz	5.01
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.01
	18GHz ~ 25GHz	5.01

4.0. Equipment List

Bluetooth ATE # 1 (SW Version: Not Applicable)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
POWER SUPPLY	6652A	MY40001437	17-Aug-17	17-Aug-19
SPECTRUM ANALYZER	FSEK30	838495/014	11-Jul-18	11-Jul-19
SPECTRUM ANALYZER	E4445A	MY46181597	21-Dec-16	21-Dec-18
10dB ATTENUATOR	33.10.34	NA	Not Required	Not Required
RF CABLE	SUCOFLEX 104	MY27726/4	Not Required	Not Required

Radiated Emission Station (SW Version: EMC FCC RE v1.5.1)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DRG HORN FREQ.	SAS-571	719	18-Jul-17	18-Jul-19
DRG HORN FREQ.	SAS-571	720	2-Mar-17	2-Mar-19
POWER SUPPLY	6032A	2615A-01178	13-Jun-18	13-Jun-19
MICROWAVE SIGNAL GENERATOR	SMP04	100131	12-Jul-18	11-Jul-19
EMI TEST RECEIVER	ESIB40	100307	8-Jul-18	8-Jul-19
EMI TEST RECEIVER	ESW44	101750	25-Jun-18	25-Jun-19
5m Semi-anechoic Chamber	S800-HX	J2308	Not Required	Not Required
BILOG ANTENNA	CBL6112D	30991	23-Apr-18	23-Apr-19
BILOG ANTENNA	CBL6112B	2964	16-Feb-18	16-Feb-20
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	7-Nov-17	7-Nov-18
DATA LOGGER	SDL500	A.016776	18-Mar-17	18-Mar-19
LOOP ANTENNA	6502	203479	8-Aug-17	8-Nov-18
AUDIO ANALYZER	8903B	3729A17397	3-Apr-2018	3-Apr-2019
SYSTEM CONTROLLER	SC104V	050806-1	Not Required	Not Required
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	Not Required	Not Required
ANTENNA POSITIONING TOWER	TLT2	NA	Not Required	Not Required
18 - 40GHz PREAMPLIFIER	Miteq Hi Gain Sucoflex	002	Not Required	Not Required
PREAMPLIFIER	PAM-0118P	361	Not Required	Not Required
HIGH PASS FILTER	TRILITHIC INC	200551043	Not Required	Not Required
RF CABLE #8	SUCOFLEX 106P	500083/6P	Not Required	Not Required
RF CABLE #3	SUCOFLEX 106P	500175/6P	Not Required	Not Required

5.0. Test Mode Applicability and Test Channel Detail

Radiated Emission Test (Above 1GHz)

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Total Channel	Tested Channel	Modulation Technology	Modulation Type
Test Mode	1 to 500	Hopset 1: 1, 26 Hopset 10: 50	FHSS	8FSK

Radiated Emission Test (Below 1GHz)

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Total Channel	Tested Channel	Modulation Technology	Modulation Type
Test Mode	1 to 500	Hopset 1: 1, 26 Hopset 10: 50	FHSS	8FSK

Power Line Conducted Emission Test

☐ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☐ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type
Application Mode	1 to 500	AUTO	FHSS	AUTO

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

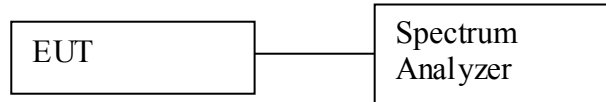
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Total Channel	Tested Channel	Modulation Technology	Modulation Type
Test Mode	1 to 500	Hopset 1: 1, 26 Hopset 10: 50	FHSS	8FSK

6.0. Transmitter Test Parameters

6.1. Conducted RF Output Power (Peak) and E.I.R.P Measurement

6.1.1. Test Setup



- a) Check and ensure the spectrum analyzer is well calibrated.
- b) Turn on the EUT and set EUT to transmit in hopping disable mode.
- c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = > 20 dB bandwidth
 - b. VBW = RBW
 - c. Detector mode = Peak
 - d. AMPLITUDE → Scale/Div = 10 dB
 - e. Trace = Max hold
 - f. Sweep = auto
- e) Measure the captured power within the band and recording the plot.
- f) Repeat above procedure with different channel frequency of operation.

6.1.2. Test Limits

Normal Condition (25 ° C)
Peak Output Power : < 1W (or 30dBm); E.I.R.P: < 4W

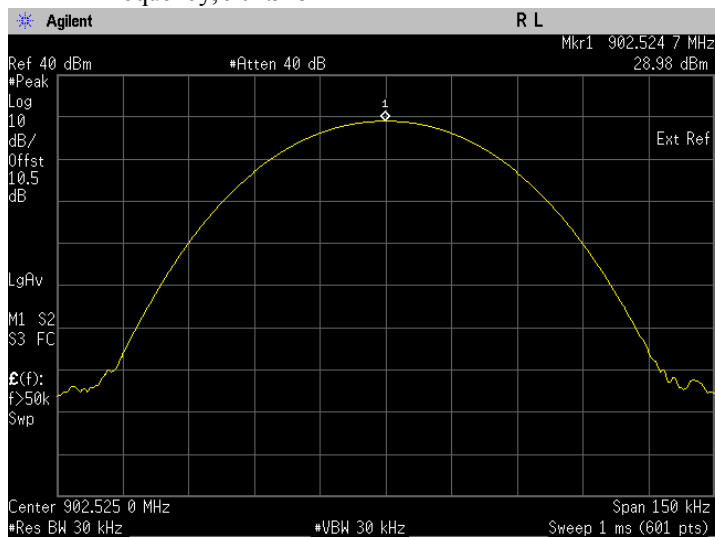
6.1.3. Test Data

Antenna Gain: 2.15dBi

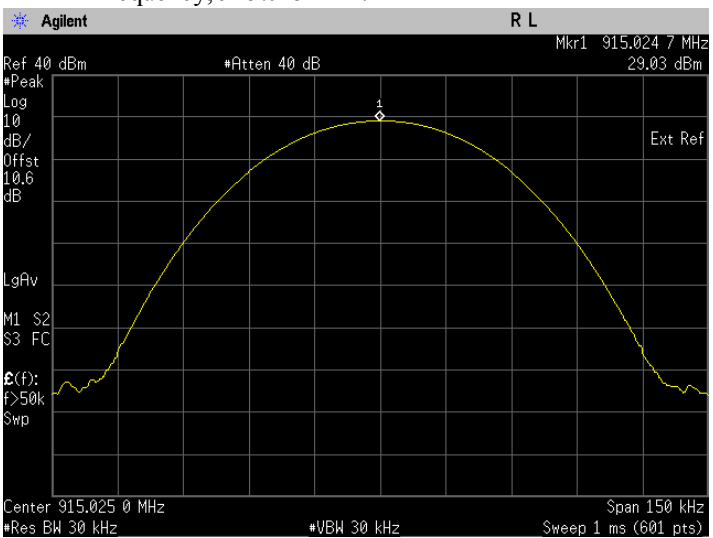
Test Conditions		Test Frequency (MHz)	Peak Output Power			E.I.R.P.		
Modulation	Voltage(V)		dBm	Watt	Status	dBm	Watt	Status
8FSK	3.70	902.525	28.979	0.79	Pass	31.129	1.30	Pass
		915.025	29.032	0.80	Pass	31.182	1.31	Pass
		927.475	29.208	0.83	Pass	31.358	1.37	Pass

****Note:** EIRP = PT +GT – LC, PT = Transmit Output Power, dBm
 GT = Antenna Gain, dBi
 LC = signal attenuation, dB1

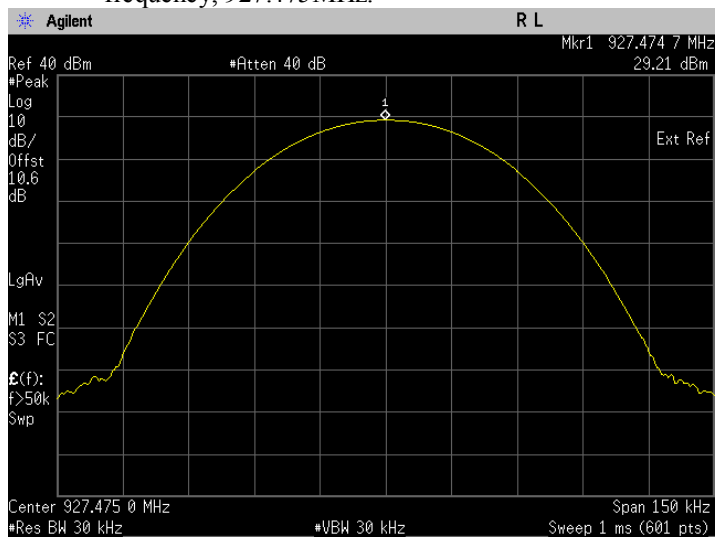
i. The Conducted RF Output Power test with result at low frequency, 902.525MHz



ii. The Conducted RF Output Power test with result at mid frequency, 915.025MHz.

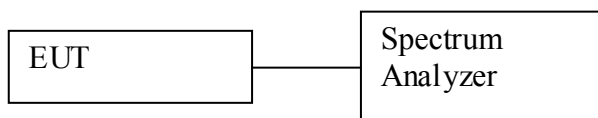


iii. The Conducted RF Output Power test with result at high frequency, 927.475MHz.



6.2. 20dB Channel Bandwidth

6.2.1. Test Setup



- a) Check and ensure the spectrum analyzer is well calibrated.
- b) Turn on the EUT and set EUT to transmit in hopping disable mode.
- c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 1 kHz
 - b. VBW = 3 kHz
 - c. SPAN = 130kHz, center on test frequency
 - d. AMPLITUDE → Scale/Div = 10 dB
 - e. Detector mode = Peak
 - f. Trace = Max hold
 - g. Sweep = auto
- e) Measure 20dB & 99% Bandwidth and record as the emission bandwidth.
- f) Save the plot result from spectrum analyzer screen.
- g) Repeat above procedure with different channel frequency of operation.

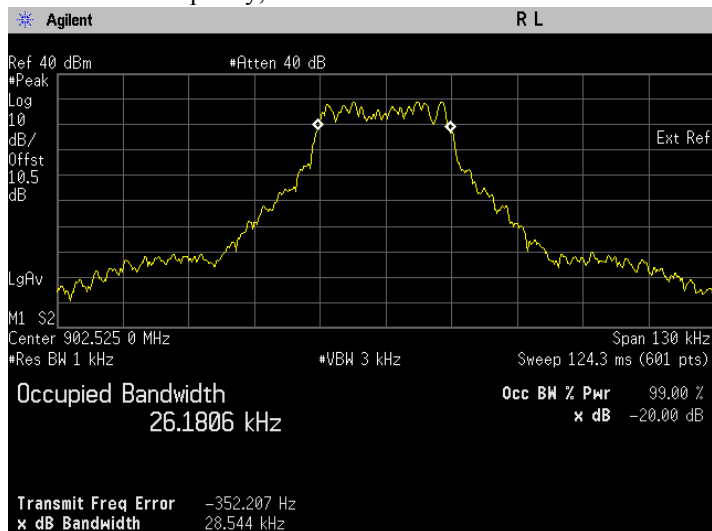
6.2.2. Test Limits

Normal Condition (25 ° C)	
For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies	

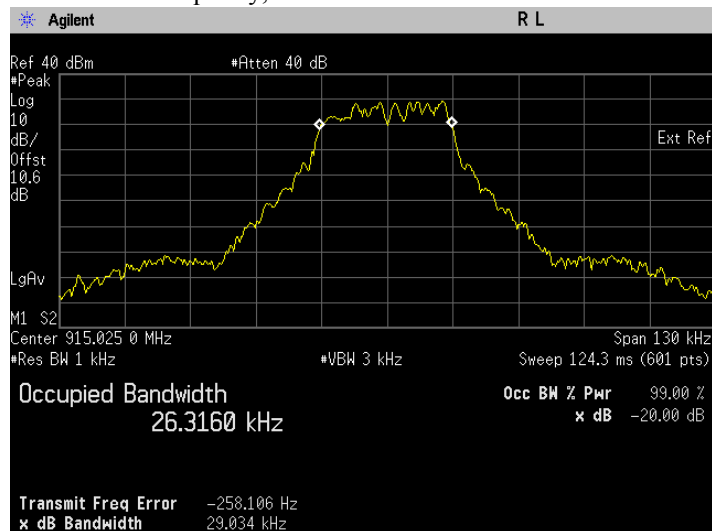
6.2.3. Test Data

Test Conditions		Test Frequency TX (GHz)	Results (MHz)		
Modulation Type	Voltage(V)		20dB Bandwidth (kHz)	99% Occupied Bandwidth (kHz)	Status
8FSK	3.70	902.525	28.544	26.1806	Pass
		915.025	29.034	26.3160	Pass
		927.475	28.615	26.1976	Pass

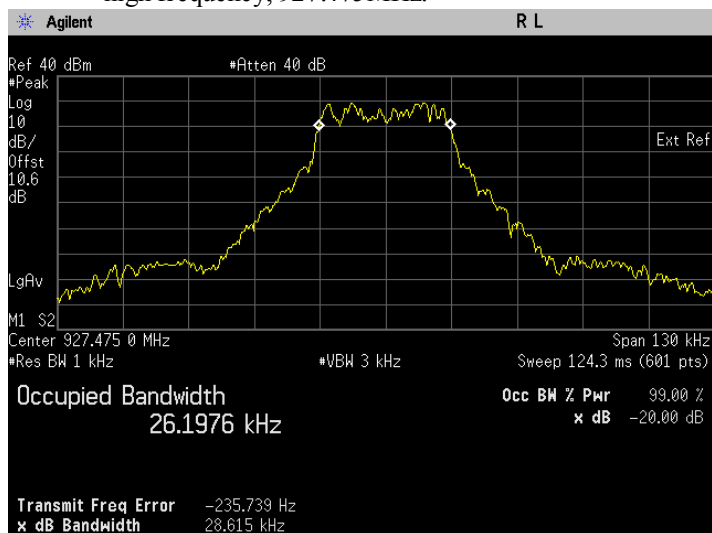
iv. The 20 dB BW & occupied bandwidth test with result at low frequency, 902.525MHz.



v. The 20 dB BW & occupied bandwidth test with result at mid frequency, 915.025MHz.

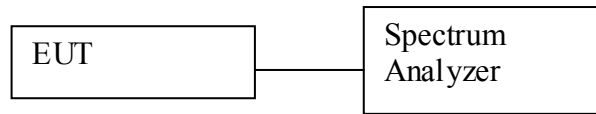


vi. The 20 dB BW & occupied bandwidth test with result at high frequency, 927.475MHz.



6.3. Band-edge Conducted Spurious Emission

6.3.1. Test Setup



- a) Check and ensure the spectrum analyzer is well calibrated.
- b) Turn on the EUT and keep the EUT in hopping mode.
- c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. SPAN = 4 MHz (Low channel) or 6MHz(High Channel)
 - d. Detector mode = Peak
 - e. Trace = Max hold
 - f. Sweep = auto
- e) Measure the captured band edge emission result and recording the plot.
- f) Repeat above on EUT with hopping disable.
- g) Repeat above procedure with other different test frequency.

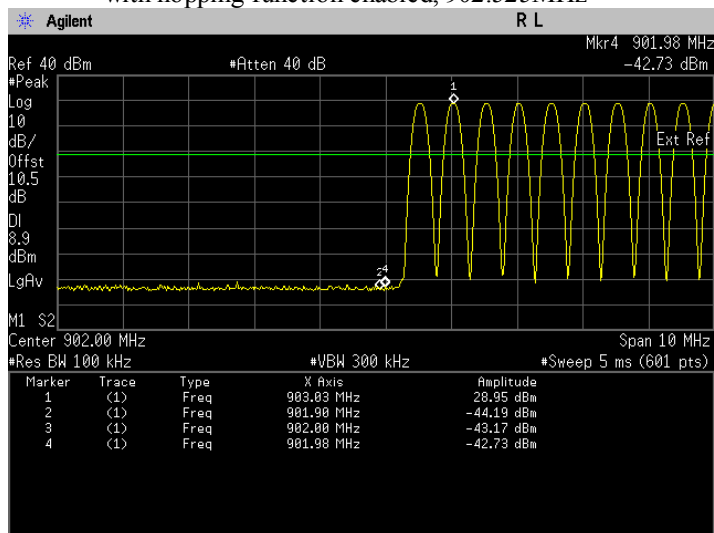
6.3.2. Test Limits

Normal Condition (25 ° C)
Shall be at least 20 dB below the peak power.

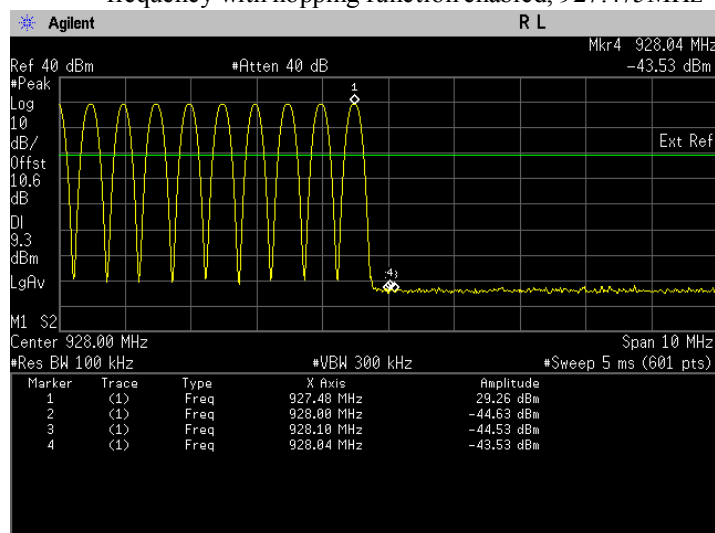
6.3.3. Test Result

Test Conditions		Hopping Method	Test Frequency(MHz)	Results	
Modulation	Voltage(V)			dB	Status
8FSK	3.70	Enabled (continuously)	902.525	-42.73	Pass
			927.475	-43.53	Pass
		Disabled (constantly)	902.525	-42.45	Pass
			927.475	-43.25	Pass

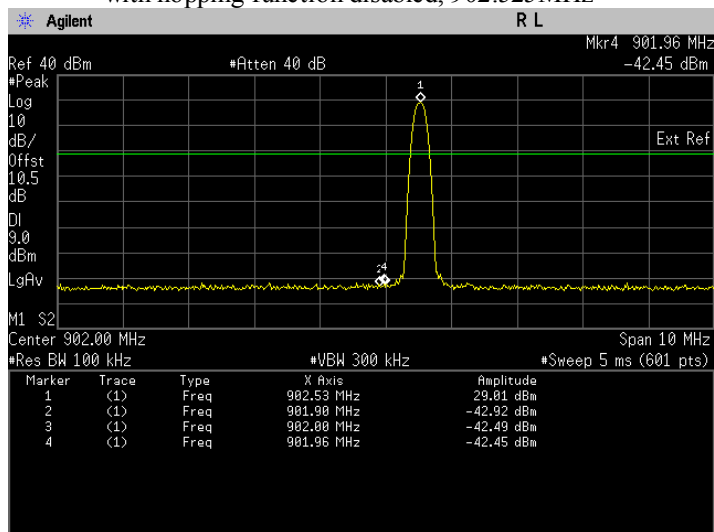
- i. The lowest band edge emission at low carrier frequency with hopping function enabled, 902.525MHz



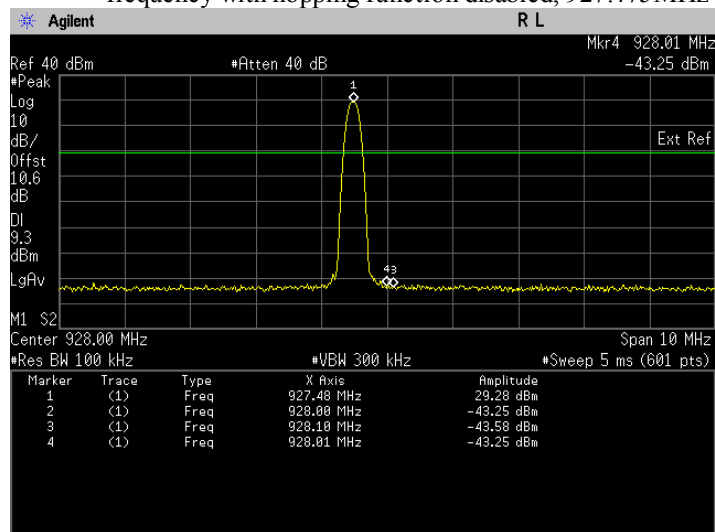
- ii. The highest band edge emission at high carrier frequency with hopping function enabled, 927.475MHz



- iii. The lowest band edge emission at low carrier frequency with hopping function disabled, 902.525MHz

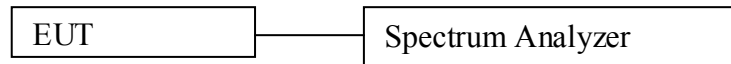


- iv. The highest band edge emission at high carrier frequency with hopping function disabled, 927.475MHz



6.4. Dwell time on each channel

6.4.1. Test Setup



- a) Check and ensure the spectrum analyzer is well calibrated.
- b) Turn on the EUT and keep the EUT in hopping mode.
- c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 10 kHz
 - b. VBW = 30 kHz
 - c. SPAN = Zero SPAN, center on hopping frequency
 - d. Detector mode = Peak
 - e. Trace = Max hold
 - f. Sweep time = 10 second
 - g. Sweep = Single
- e) Measure total numbers of transmissions occur in 10 second and save the plot.
- f) Change the setting of spectrum analyzer :
 - a. RBW = 10 kHz
 - b. VBW = 30 kHz
 - c. Sweep time = sufficient to capture dwell time for 1 transmission
 - d. Sweep = Single
- g) Measure dwell time for 1 transmission and save the plot.
- h) Calculate accumulate dwell time in a given period equal to number of hopping frequencies.
- i) Repeat above procedure with different channel frequency of operation

6.4.2. Test Limits

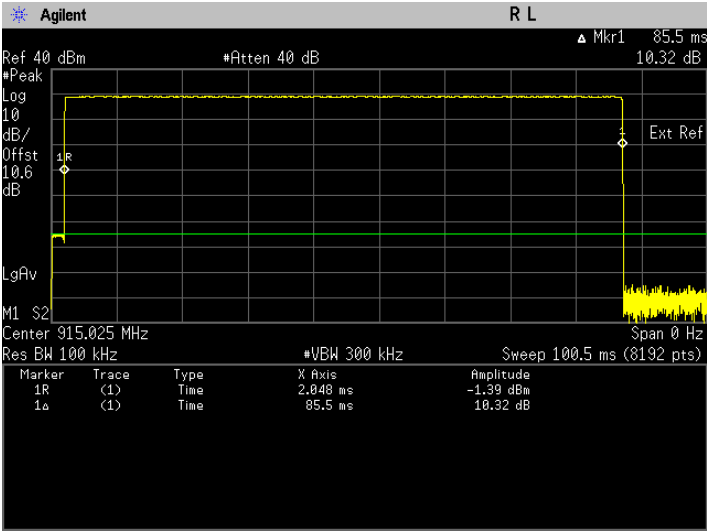
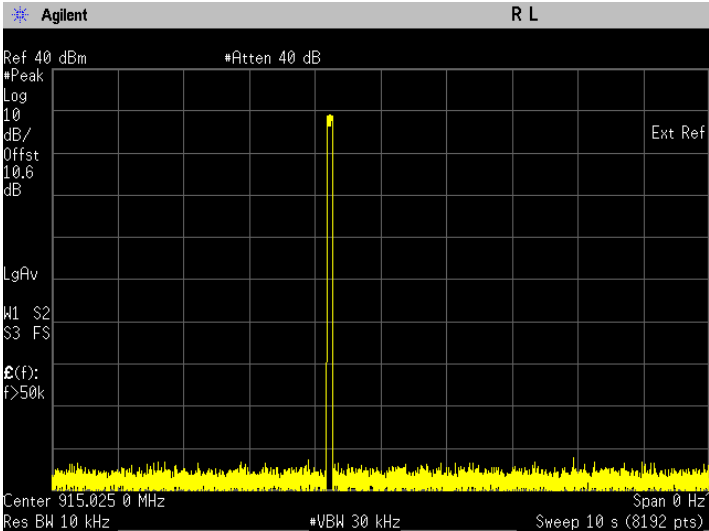
Normal Condition (25 ° C)
≤ 0.4sec

6.4.3. Test Result

Test Conditions			Results			
Modulation	Volt (V)	Test Frequency (MHz)	No. of transmission in 10s (a)	Dwell time in one transmission (msec) (b)	Total accumulate dwell time in 20s. (msec) (c)	Status
8FSK	3.70	915.025	1	85.501	171.002	Pass

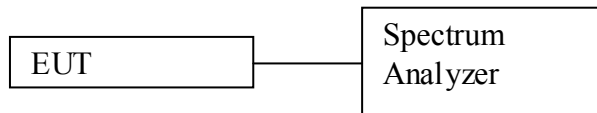
****Note:** Total dwell time in 20s, (c) = (a) x (b) x 2

Dwell Time



6.5. Number of hopping Frequency

6.5.1. Test Setup



- a) Check and ensure the spectrum analyzer is well calibrated.
- b) Turn on the EUT and keep the EUT in hopping mode.
- c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 10 kHz
 - b. VBW = 10 kHz
 - c. Detector mode = Peak
 - d. Trace = Max hold
- e) Allow the trace to stabilized & save the plot result from spectrum analyzer screen.
- f) Count number of channel frequency in the operating.
- g) Repeat above procedure for other test frequency.

6.5.2. Test Limits

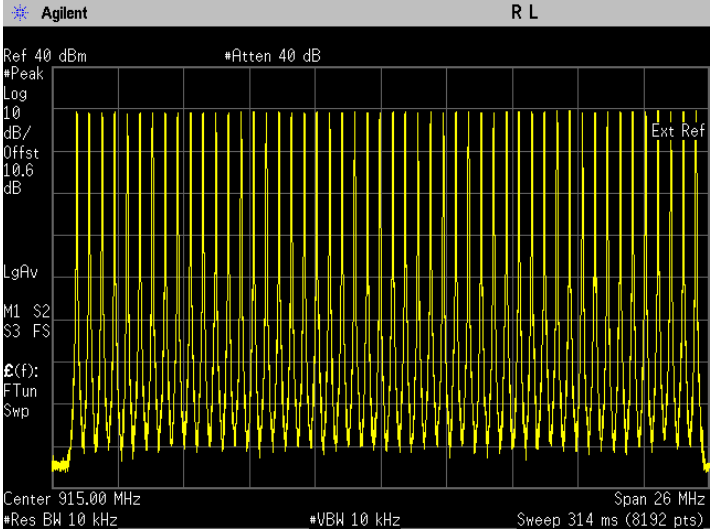
Normal Condition (25 ° C)
≥ 50

6.5.3. Test Result

Voltage = 3.80V

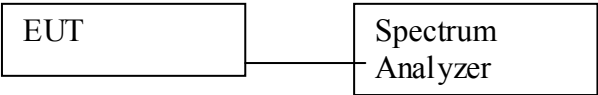
HOPSET	Sweep Range (MHz)	Results			
		Start Freq (MHz)	Last Freq (MHz)	No. of Hopping Frequencies	Status
1	902 - 928	902.525	927.025	50	Pass

i. Number of Hopping Frequencies per HOPSET



6.6. Channel Separation

6.6.1. Test Setup



- a) Check and ensure the spectrum analyzer is well calibrated.
- b) Turn on the EUT and keep the EUT in hopping mode.
- c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 10 kHz
 - b. VBW = 30 kHz
 - c. SPAN = 1 MHz, center on test frequency
 - d. Detector mode = Peak
 - e. Trace = Max hold
 - f. Sweep = auto
- e) Measure the frequency different of these two adjacent channels with marker delta function & record the measurement results.
- f) Repeat above procedure with different channel frequency of operation

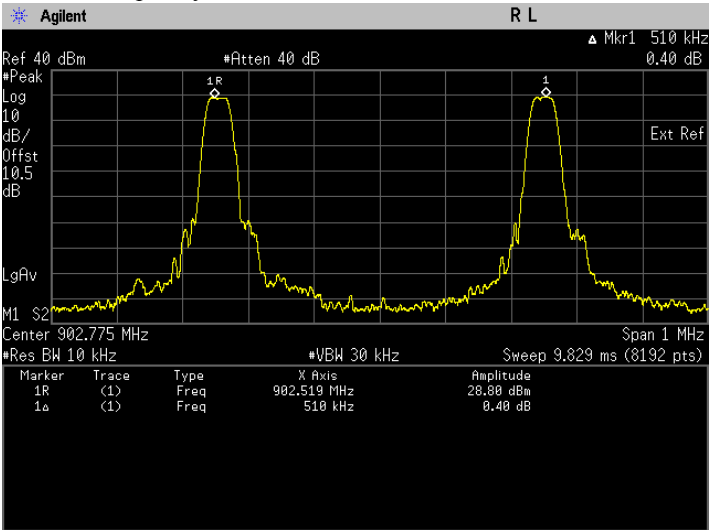
6.6.2. Test Limits

Normal Condition (25 ° C)
At least 25kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

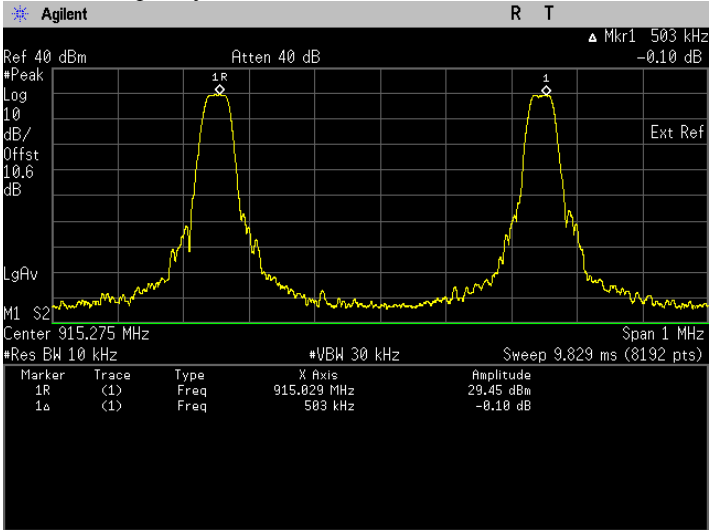
6.6.3. Test Result

Modulation	Voltage(V)	Test Frequency (MHz)	Test Data Adjacent Channel Separation (MHz)	Status
8FSK	3.70	902.525	0.510	Pass
		915.025	0.503	Pass
		927.475	0.507	Pass

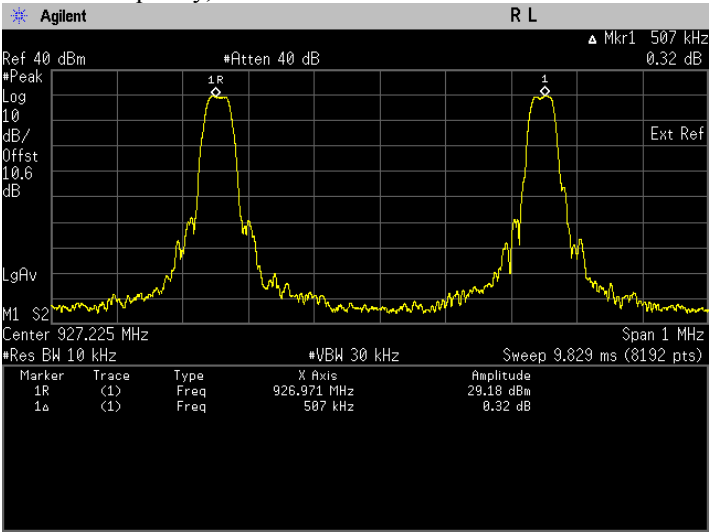
i. The Channel Separation test with result at low frequency, 902.525MHz.



ii. The Channel Separation test with result at mid frequency, 915.025MHz.

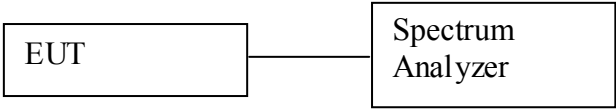


iii. The Channel Separation test with result at high frequency, 927.475MHz.



6.7. Conducted Spurious Emission

6.7.1. Test Setup



- a) Check and ensure the spectrum analyzer is well calibrated.
- b) Turn on the EUT and set EUT to transmit maximum data rate with hopping disable.
- c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. SPAN = Cover until 10th harmonic
 - d. Detector mode = Peak
 - e. AMPLITUDE → Scale/Div = 10 dB
 - f. Trace = Max hold
 - g. Sweep = auto
- e) Measure the captured spurious emission result and recording the plot.
- f) Repeat above procedure with different channel frequency of operation.

6.7.2. Test Limits

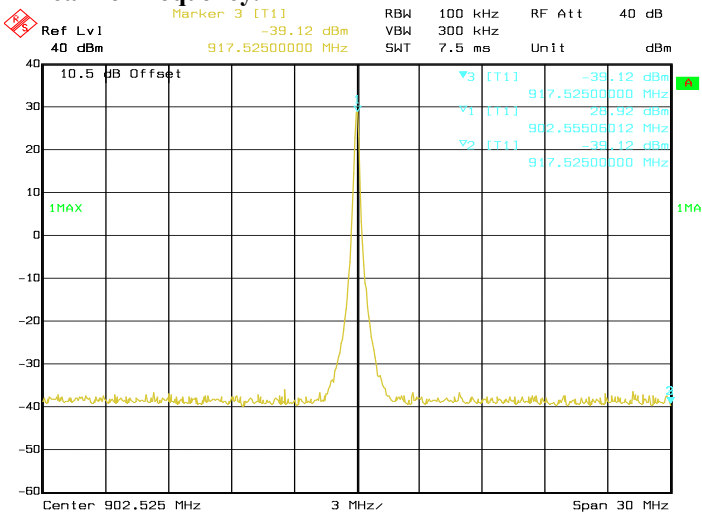
Normal Condition (25 ° C)
Shall be at least 20 dB below for peak power.

6.7.3. Test Data

Test Conditions		Test Frequency (MHz)	Results	
Modulation	Voltage(V)		Spurious Level	Status
8FSK	3.70	902.525	-30.72	Pass
		915.025	-30.17	Pass
		927.475	-31.34	Pass

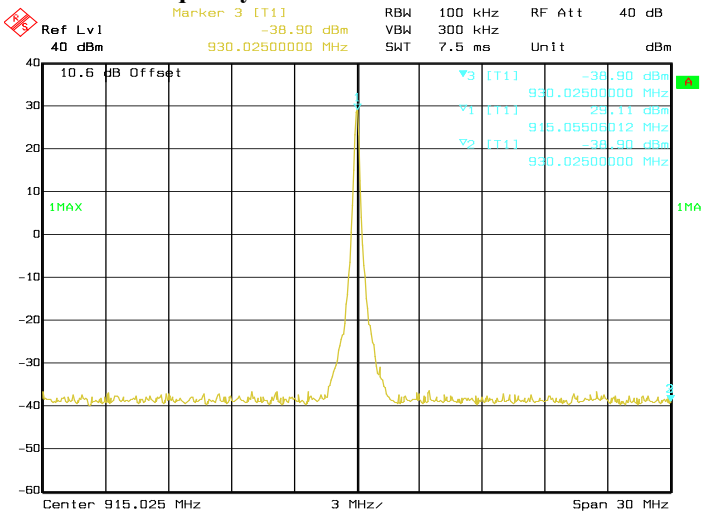
8FSK Modulation:

- The high emission level within the assigned band at low carrier frequency.



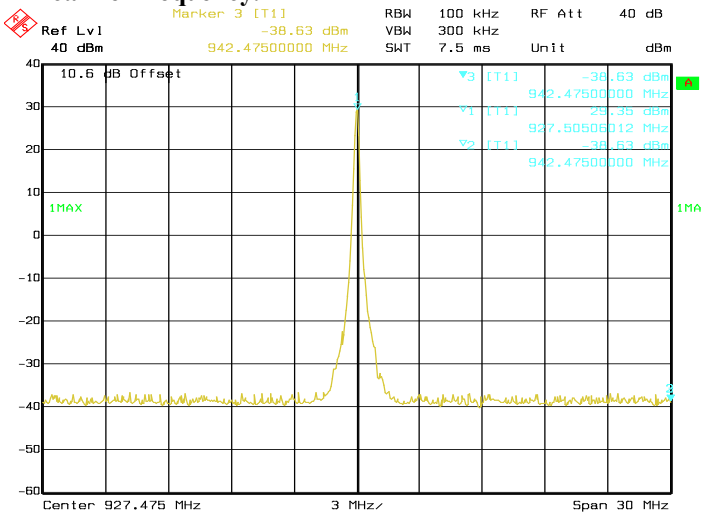
Date: 29.AUG.2018 10:01:15

- The high emission level within the assigned band at mid carrier frequency.



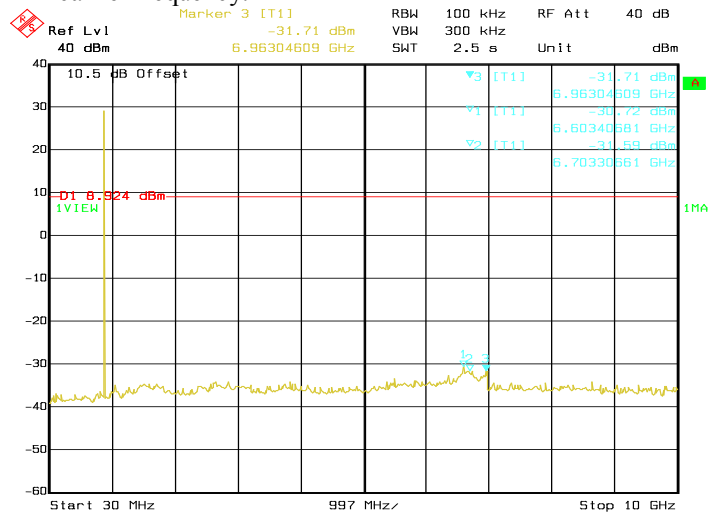
Date: 29.AUG.2018 10:04:02

- The high emission level within the assigned band at high carrier frequency.



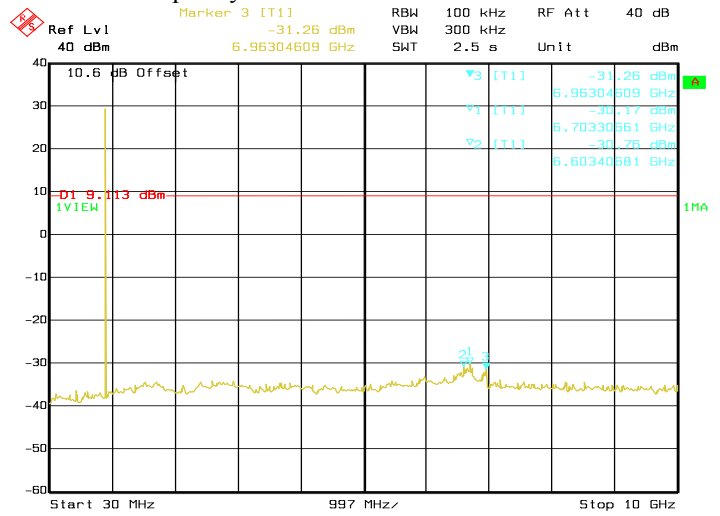
Date: 29.AUG.2018 10:05:55

- Spurious emission measurement in 30MHz – 10GHz at low carrier frequency.



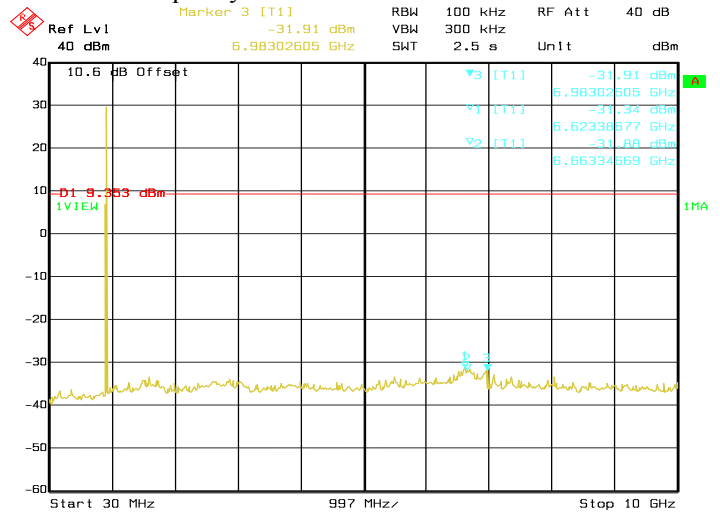
Date: 29.AUG.2018 10:02:06

- Spurious emission measurement in 30MHz – 10GHz at mid carrier frequency.



Date: 29.AUG.2018 10:04:55

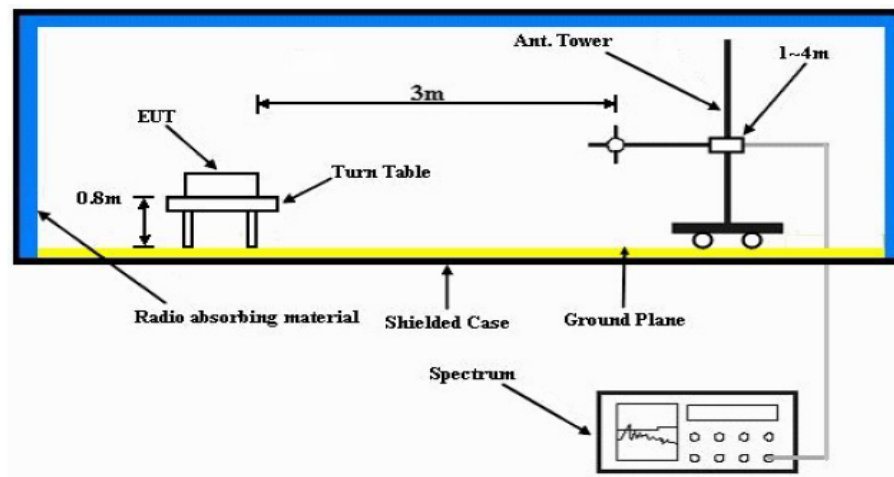
- Spurious emission measurement in 30MHz – 10GHz at high carrier frequency.



Date: 29.AUG.2018 10:06:48

6.8. Radiated Spurious Emission

6.8.1. Test Setup



- The EUT is placed on the top of a rotating table 0.8m (<1Ghz) and 1.5m (>1Ghz) above the ground at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
- The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
- The antenna is Bilog/Horn antenna depend on which frequency range uses, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

6.8.2. Test Limits

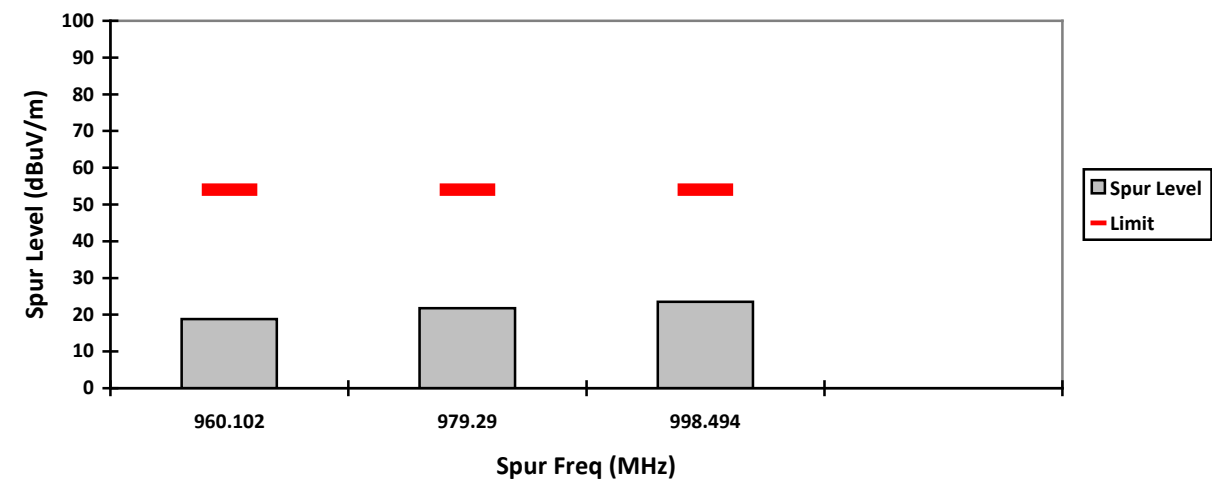
Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

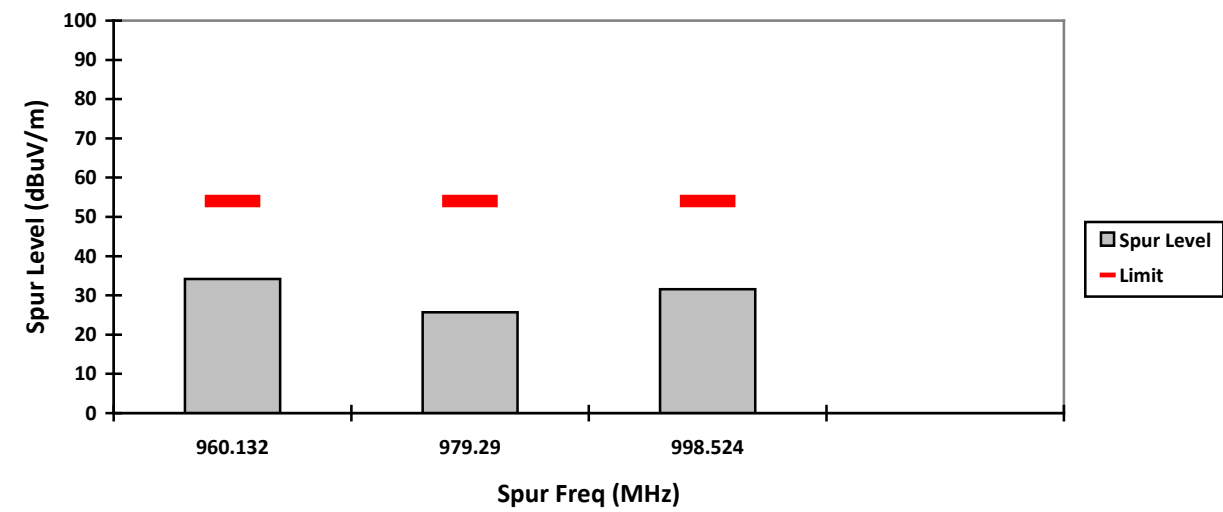
NOTE:

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

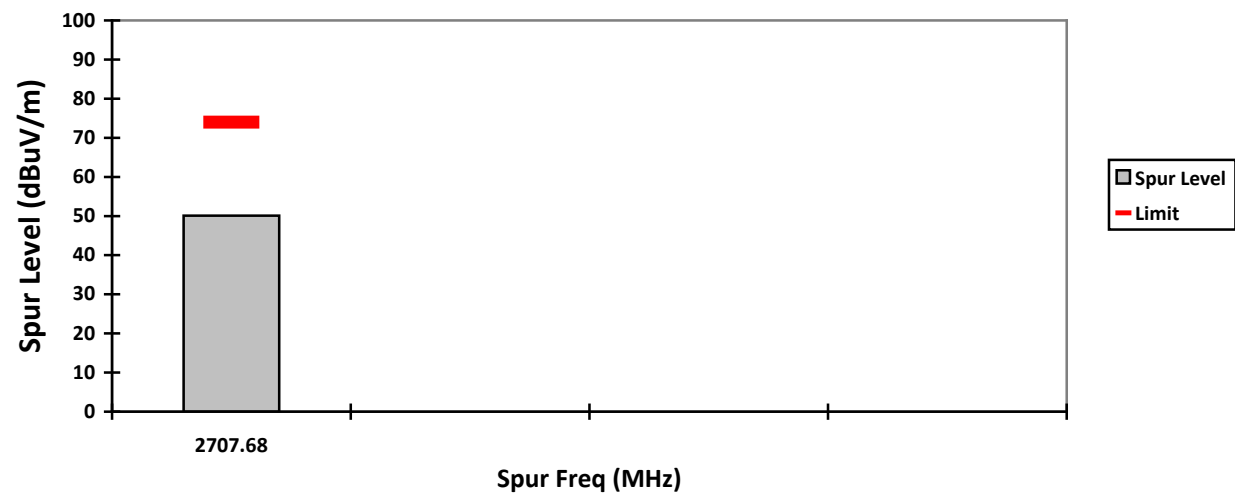
VERTICAL, QPK



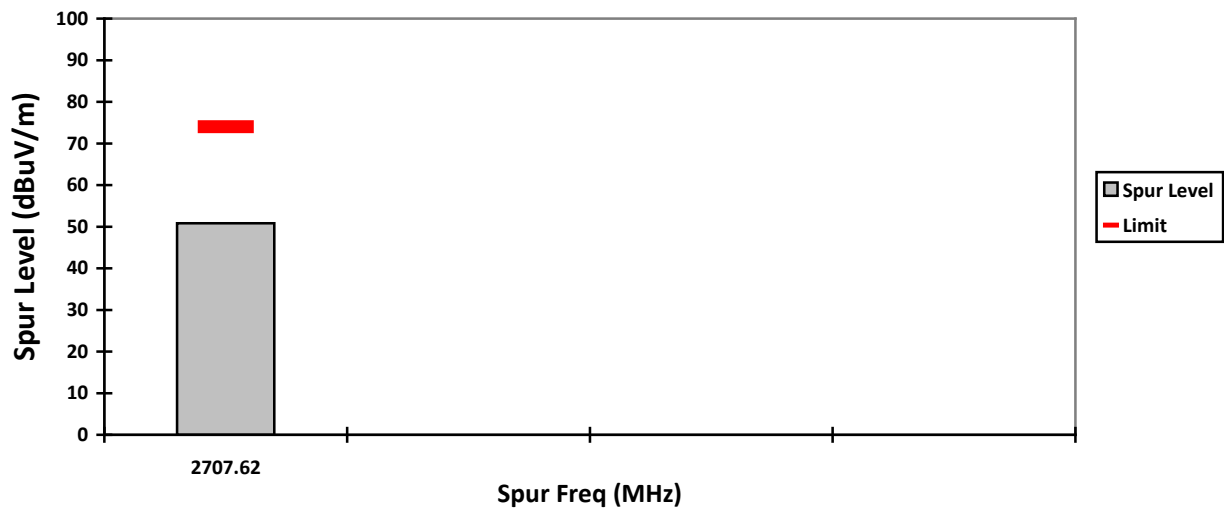
HORIZONTAL, QPK



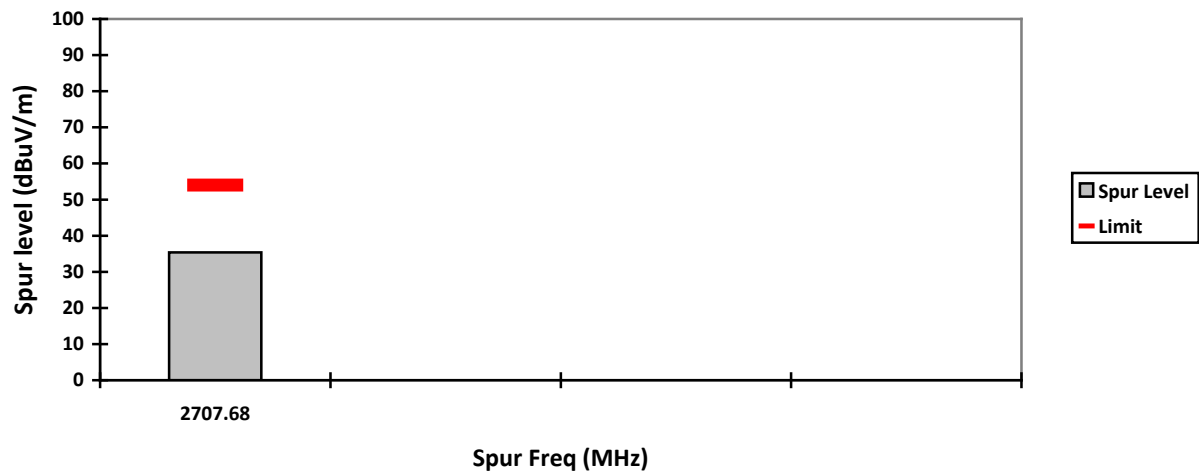
VERTICAL, PK



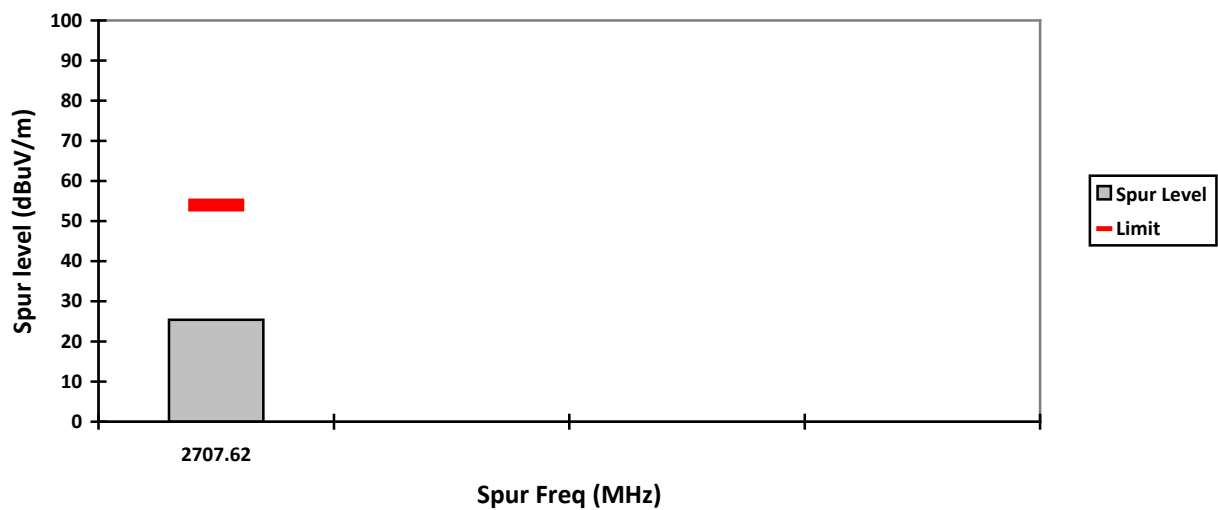
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: SAC Transmitter Radiated Emission		
Model#: DTS150NBDLAA	S/N: 379TUR0019	EMC SR ID#: 12719-EMC-00005
Battery: PMNN4578A	Accessory: NA	
Test Channel: Mid	Test Frequency: 915.0250 MHz	Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane		

Radiated Emission (Mid Channel) tabular data

[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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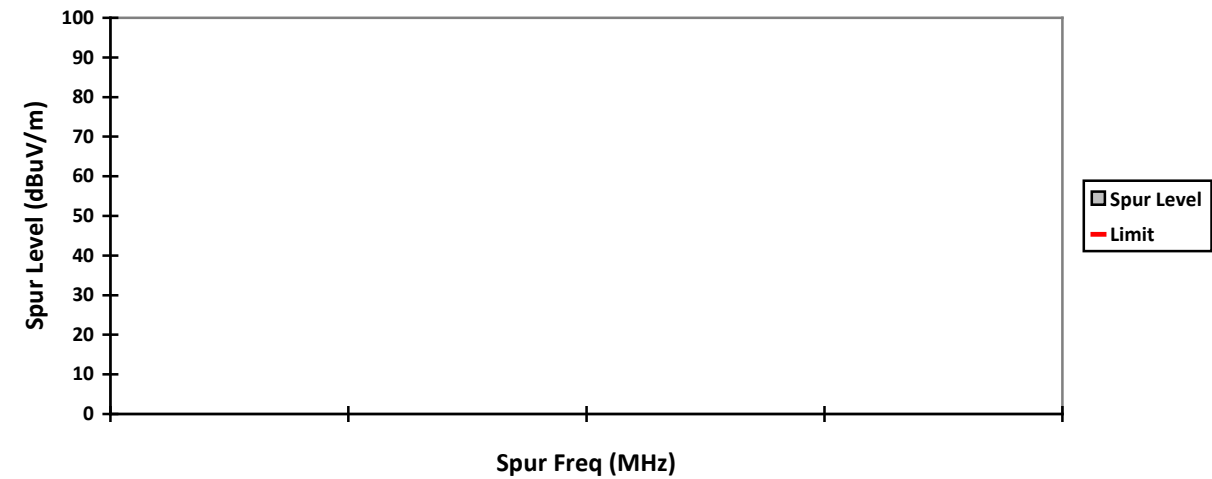
Temperature (degC): 23.6
Test Performed by: Nazrin & Qawiman
System MU: 5.01dB

Humidity (%): 70.3
Test Date: Tue, Oct 09, 2018

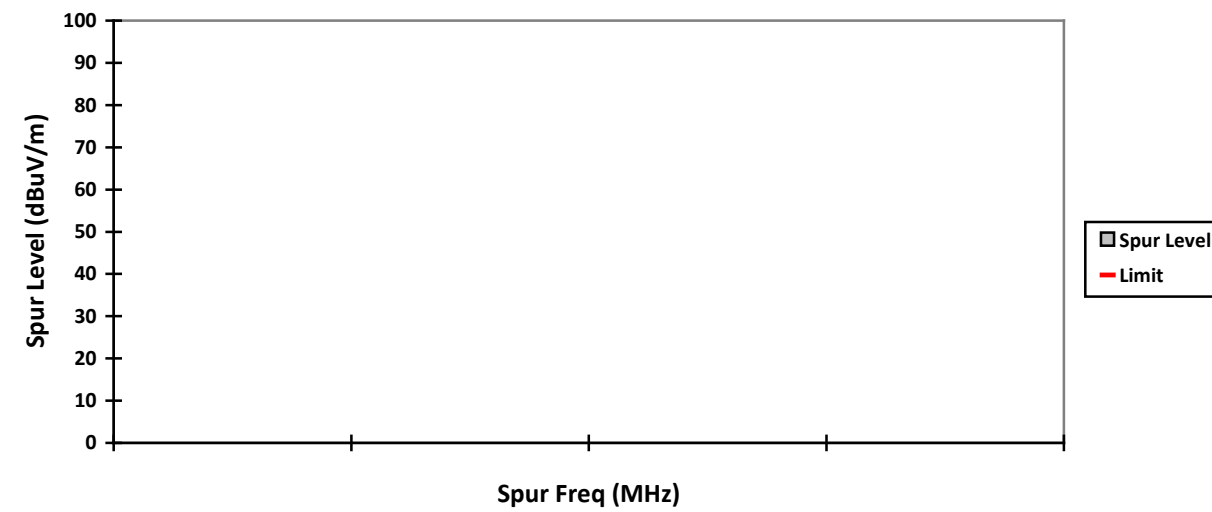
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.

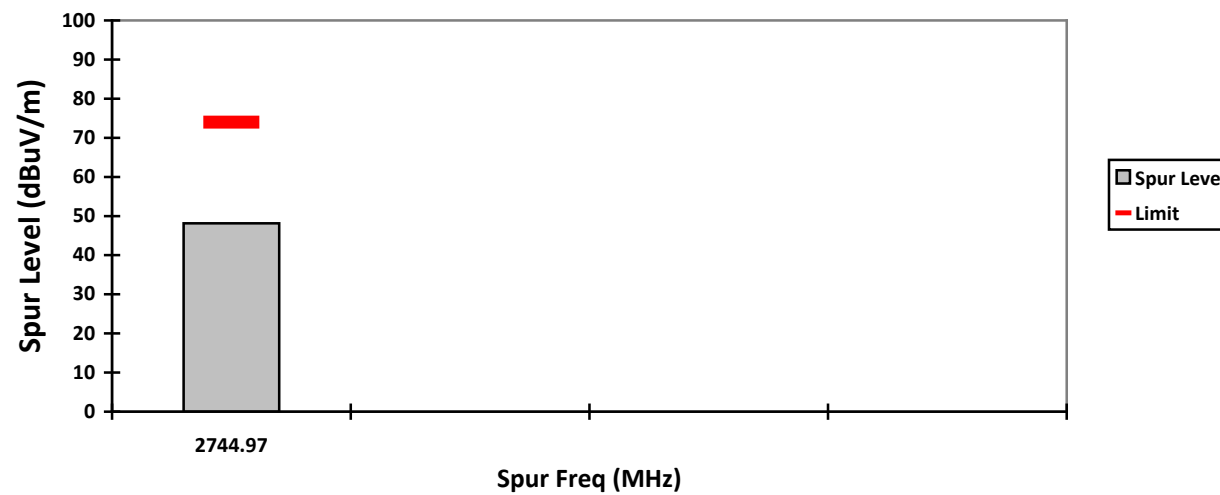
VERTICAL, QPK



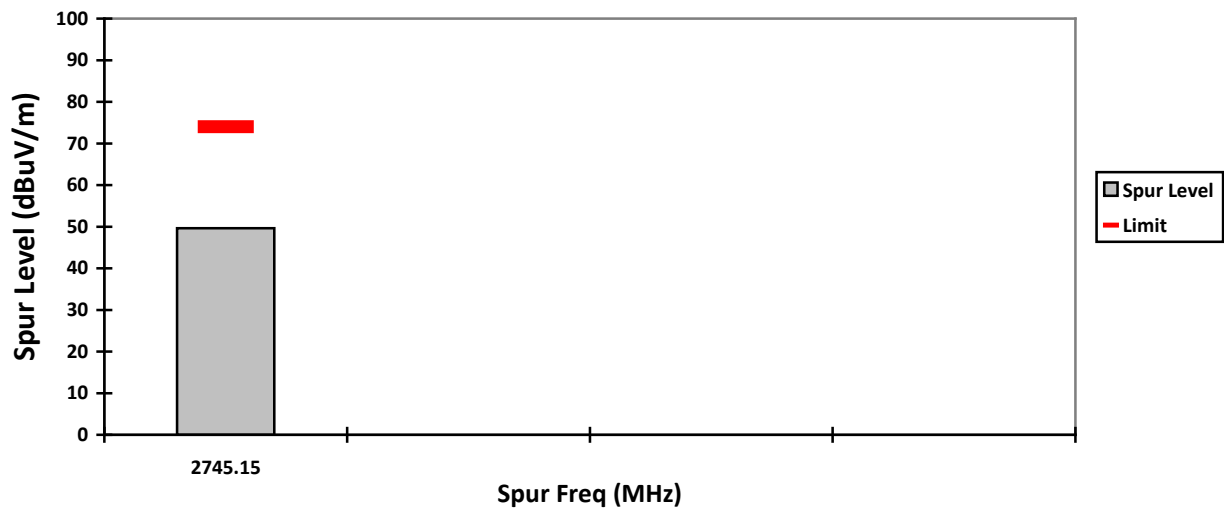
HORIZONTAL, QPK



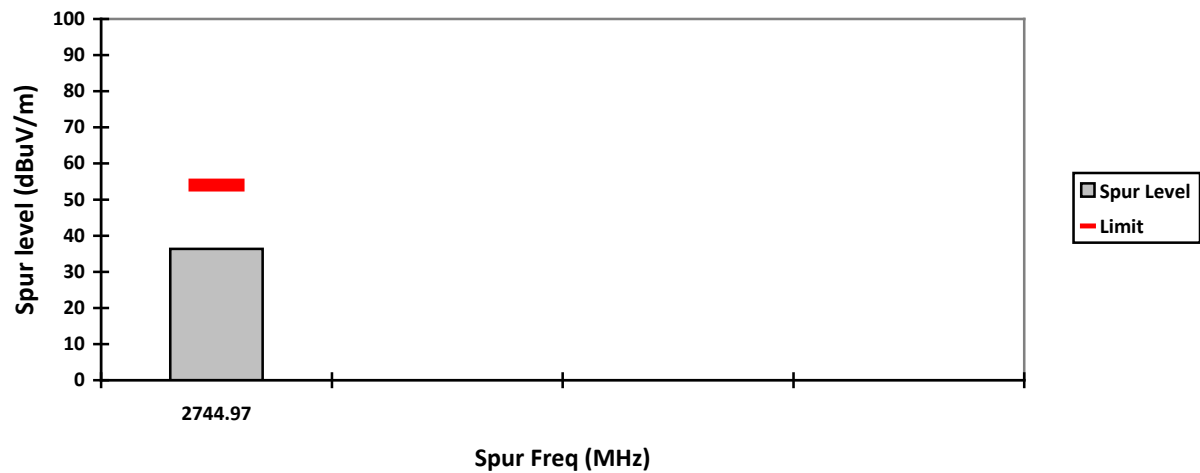
VERTICAL, PK



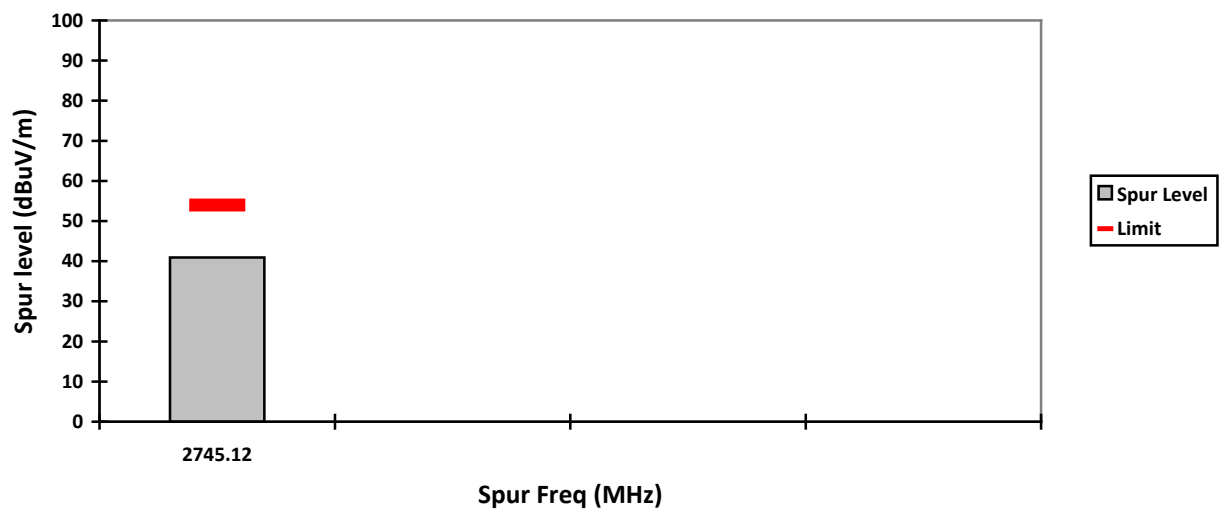
HORIZONTAL, PK



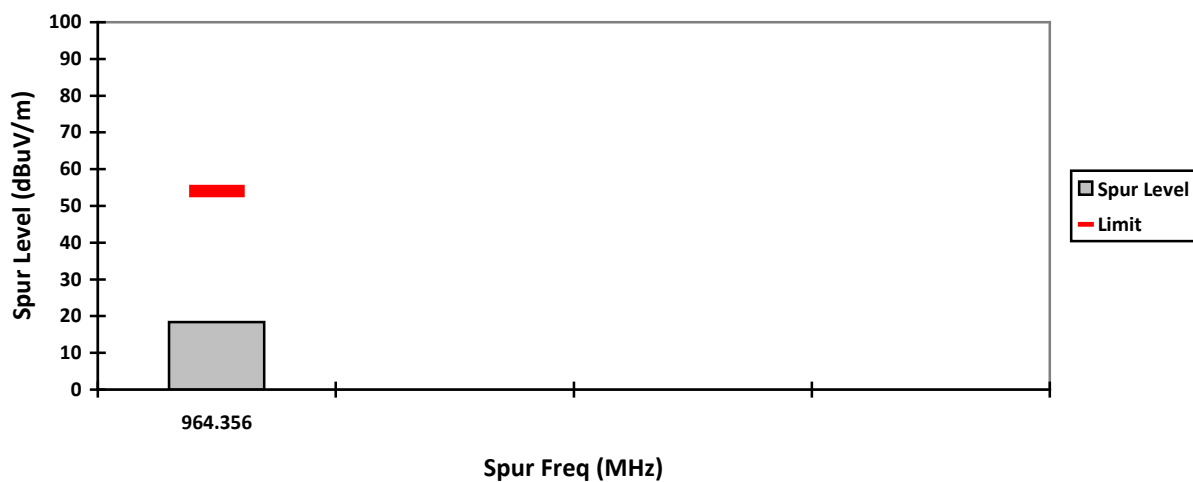
VERTICAL, AV



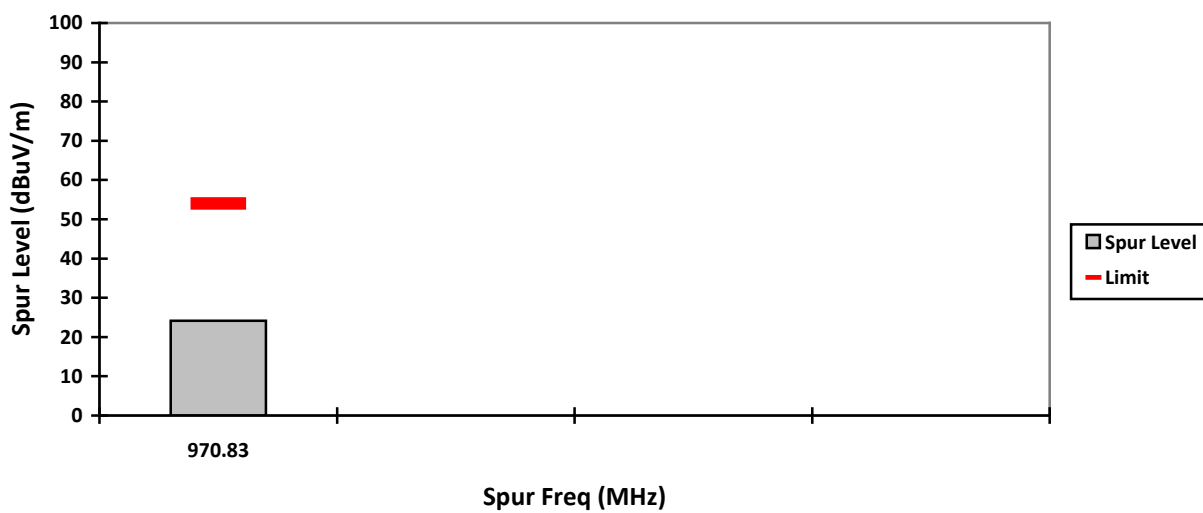
HORIZONTAL, AV



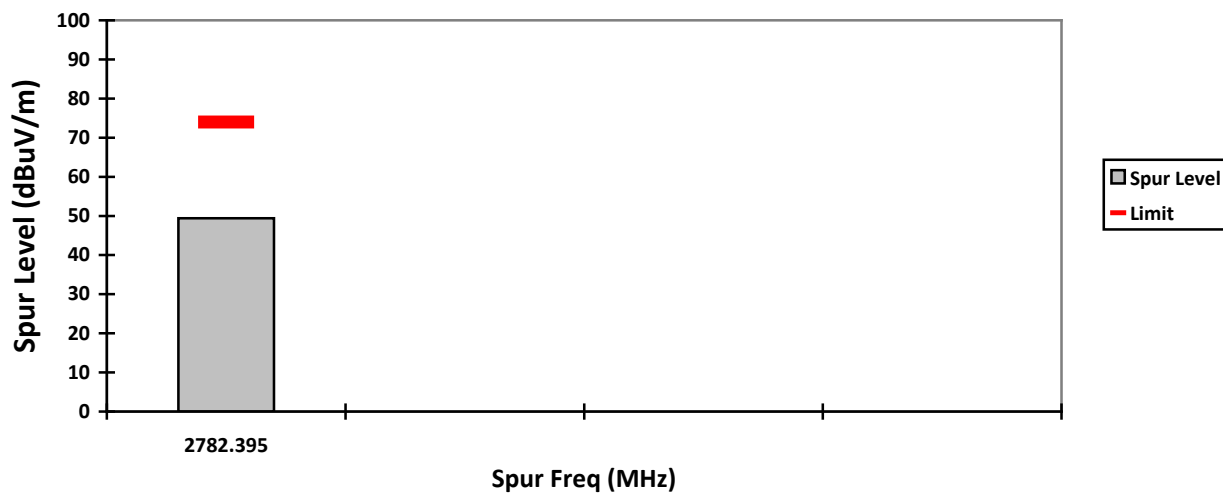
VERTICAL, QPK



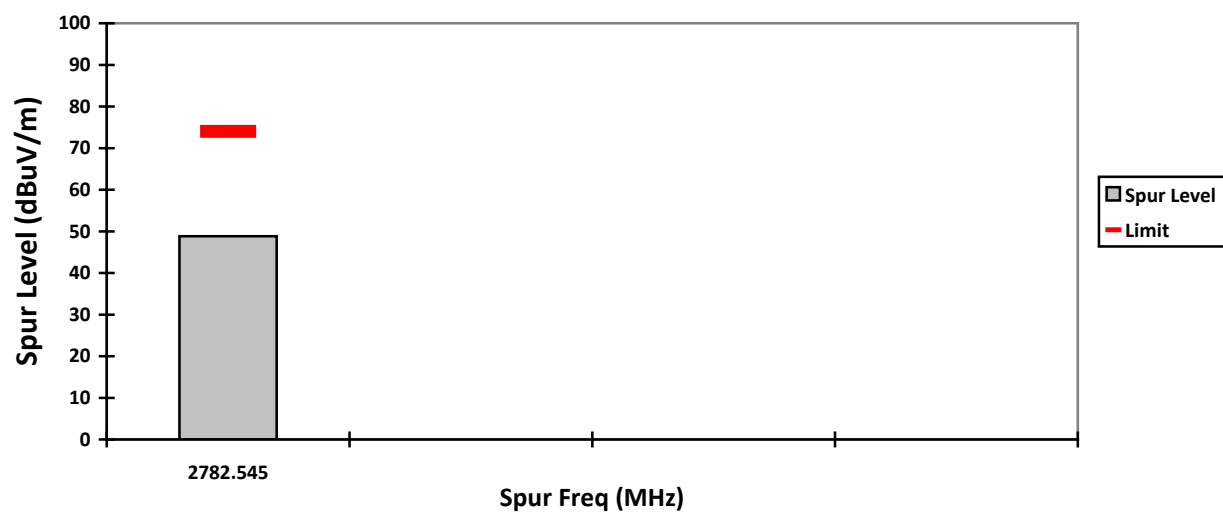
HORIZONTAL, QPK



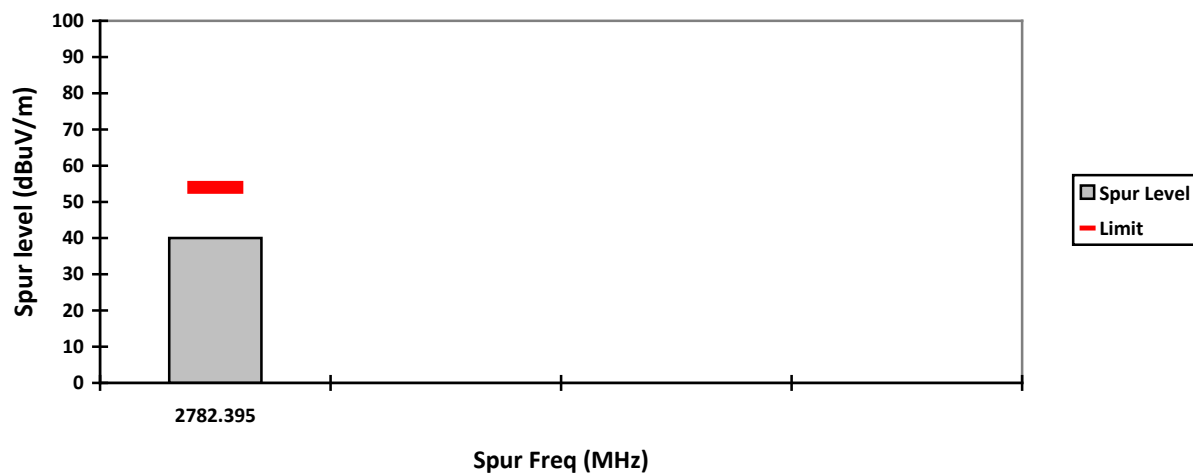
VERTICAL, PK



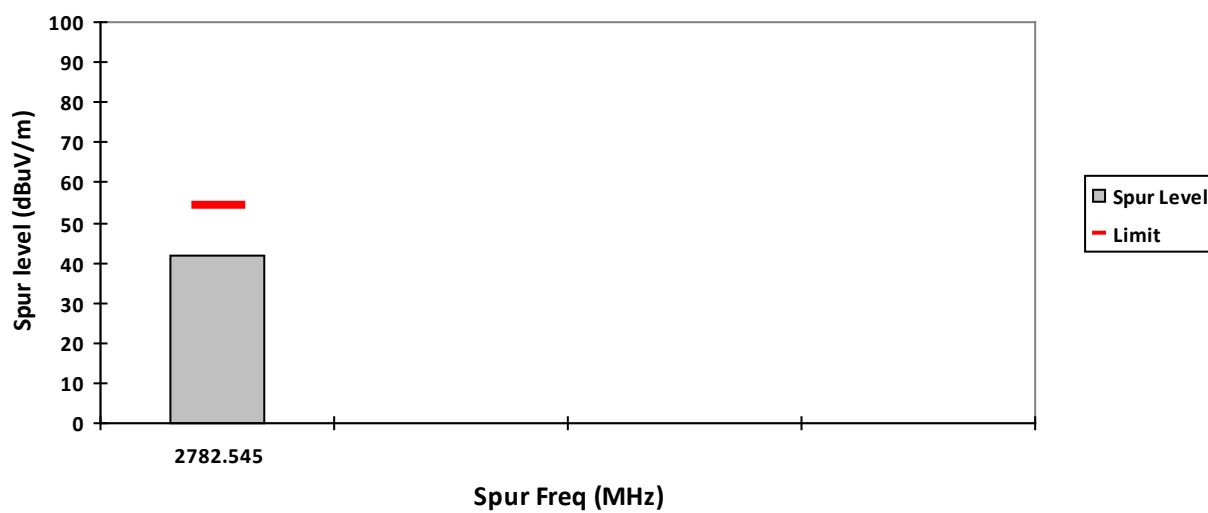
HORIZONTAL, PK



VERTICAL, AV

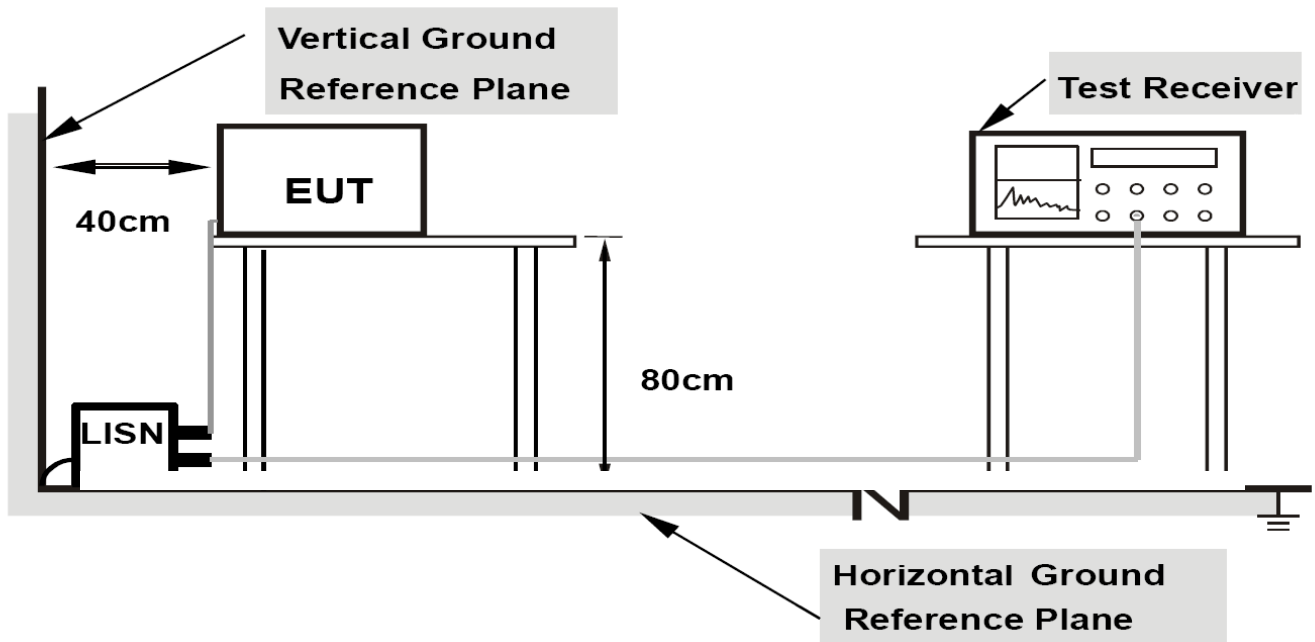


HORIZONTAL, AV



6.9. AC Powerline Conducted Emission

6.9.1. Test Setup



- 1) Tests were conducted for both Receive and Transmit Mode of the EUT.
- 2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
- 3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 4) The frequency range from 150 kHz to 30MHz was measured.

6.9.2. Test Limits

For AC Power Line Conducted Test Limit can be Class A or B depends on product classification.

**Limits for conducted disturbance at the mains ports
of class A ITE**

Frequency range MHz	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60
NOTE The lower limit shall apply at the transition frequency.		

Table 1: Limits for Conducted Disturbance at the Mains Ports of Class A ITE.

**Limits for conducted disturbance at the mains ports
of class B ITE**

Frequency range MHz	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50
NOTE 1 The lower limit shall apply at the transition frequencies. NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

Table 2: Limits for Conducted Disturbance at the Mains Ports of Class B ITE

6.9.3. Test Result

Not Applicable.

~ End of Test Report ~