FCC RF Test Report

Applicant:	Inseego Corp.
Address of Applicant:	9605 Scranton Road, Suite 300, San Diego, CA 92121 United States
Manufacturer:	Inseego Corp.
Address of Manufacturer:	9605 Scranton Road, Suite 300, San Diego, CA 92121 United States

Equipment Under Test (EUT)

Product Name:	Inseego Business Phone Connect
Model No.:	BPC100
Trade Mark:	inseego
FCC ID:	PKRISGBPC100
Applicable standards:	FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
Date of sample receipt:	August 20, 2019
Date of Test:	August 20-September 10, 2019
Date of report issued:	September 10, 2019
Test Result :	PASS *

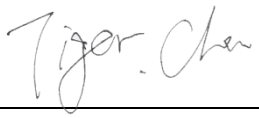
* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

Report Revise Record

Version No.	Date	Description
00	*September 10, 2019*	*Original*

Prepared By:  ***Date:*** *September 10, 2019*

Project Engineer

Check By:  ***Date:*** *September 10, 2019*

Reviewer

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
4.2	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§22.913(a)(2)	Effective Radiated Power	< 7 Watts	PASS	-
	§24.232(c)	Effective Isotropic Radiated Power	< 2 Watts	PASS	-
	§27.50(d)(4)	Effective Isotropic Radiated Power	< 1 Watts	PASS	-
4.3	§24.232(d) §27.50	Peak-to-Average Ratio	< 13 dB	PASS	-
4.4	§2.1049 §22.917(b) §24.238(b) §27.53(g)	Occupied Bandwidth	Reporting Only	PASS	-
4.5	§2.1051 §22.917(a) §24.238(a) §27.53(h)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
4.6	§2.1051 §22.917(a) §24.238(a) §27.53(h)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
4.7	§2.1055 §22.355	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	-
	§2.1055 §24.235 §27.54		Within Authorized Band		
5.5	§2.1053 §22.917(a) §24.238(a) §27.53(h)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 34.39dB at 6849.6 MHz

1 Test Laboratory

1.1 Test facility

● FCC —Registration No.: 381383

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

● IC —Registration No.: 9079A-2

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2.

● NVLAP (LAB CODE:600179-0)

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

2 General Description

2.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Inseego Business Phone Connect
Brand Name	inseego
Model Name	BPC100
Nominal Voltage	5 Vdc (From Adapter or PC)
Extreme Voltage	DC 4.75V and DC 5.25V
EUT supports Radios application	WCDMA/HSPA
Serial No.:	N/A
HW Version	725-0701-001-3
SW Version	2.115.10
EUT Stage	Production Unit

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

2.2 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	**WCDMA:** Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz Band IV: 1712.4 MHz ~ 1752.6 MHz
Rx Frequency	**WCDMA:** Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz Band IV: 2112.4 MHz ~ 2152.6 MHz
Maximum EIRP Power	**WCDMA:** Band V: 23.68dBm Band II: 24.69dBm Band IV: 25.49dBm
Antenna Type	Reference EUT photos
Type of Modulation	WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink)

2.3 Modification of EUT

No modifications are made to the EUT during all test items.

2.4 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 22(H), 24(E), 27(L)
- ANSI / TIA / EIA-603-E-2016
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

3 Test Configuration of Equipment Under Test

3.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

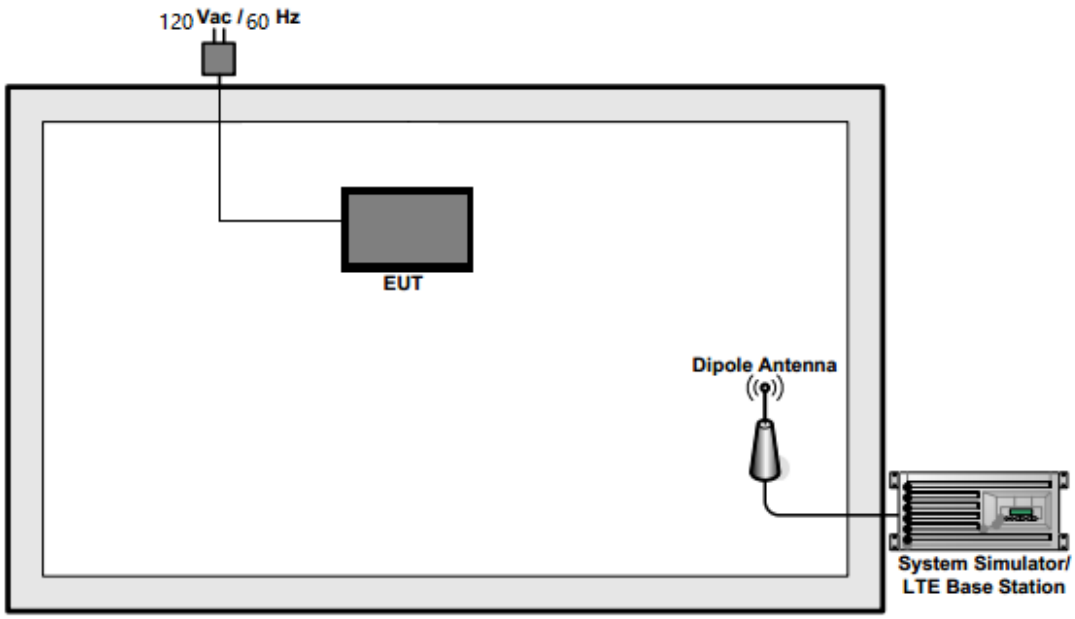
Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated from 30 MHz to 10th harmonic.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	**Radiated TCs**	**Conducted TCs**
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2KbpsLink	■ RMC 12.2KbpsLink
WCDMA Band IV	■ RMC 12.2KbpsLink	■ RMC 12.2KbpsLink

3.2 Connection Diagram of Test System



3.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Station	R&S	CMW500	N/A	N/A	Unshielded, 1.8 m
2.	Notebook	Lenovo	E470C	N/A	N/A	Unshielded, 1.8 m

3.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 4.5 dB and a 10dB attenuator.

Example :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.5 + 10 = 14.5 (dB)

4 Conducted Test Result

4.1 Measuring Instruments

See list of measuring instruments of this test report.

4.2 Conducted Output Power and ERP/EIRP

4.2.1 Description of the Conducted Output Power and ERP/EIRP

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for WCDMA Band V

The EIRP of mobile transmitters must not exceed 2 Watts for WCDMA Band II

The EIRP of mobile transmitters must not exceed 1 Watts for WCDMA Band IV

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T – L_C$, ERP = EIRP – 2.15, Where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

4.2.2 Test Procedures

UMTS REL99

The following summary of these settings are illustrated below:

	Mode	Rel99
	Subtest	-
WCDMA General Setting	Loopback Mode	Test Mode 2
	Rel99 RMC	12.2kbps RMC
	HSDPA FRC	Not Applicable
	HSUPA Test	Not Applicable
	Power Control Algorithm	Algorithm2
	βc	Not Applicable
	βd	Not Applicable
	βec	Not Applicable
	βc/βd	8/15
	βhs	Not Applicable
	βed	Not Applicable

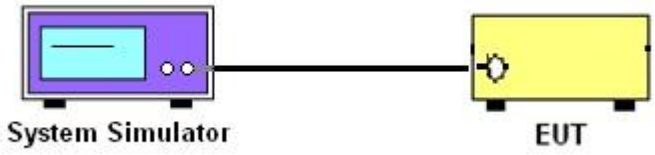
HSPA REL 6 (HSDPA & HSUPA)

The following summary of these settings are illustrated below:

	Mode	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	15/1
	βhs	22/15	12/15	30/15	4/15	5/15
	βed	1309/225	94/75	47/15	56/75	47/15
	CM (dB)	1	3	2	3	1
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	12
	ETFCI	75	67	92	71	67
	Associated Max UL Data Rate	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18			E-TFCI11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18	

		E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26	E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO18	E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26

4.2.3 Test Setup



4.2.4 Test Results

Refer to Appendix A of this test report.

4.3 Peak-to-Average Ratio

4.3.1 Description of the PAR Measurement

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, thespectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used todetermine the largest deviation between the average and the peak power of the EUT in agiven bandwidth. TheCCDF curve shows how much time the peak waveform spends at or above a given average power level. The percentof time the signal spends at or above the level defines the probability for that particular power level. For GSM signals,an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between theaverage and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces aregenerated with the spectrum analyzer set to zero span mode.

4.3.2 Limit

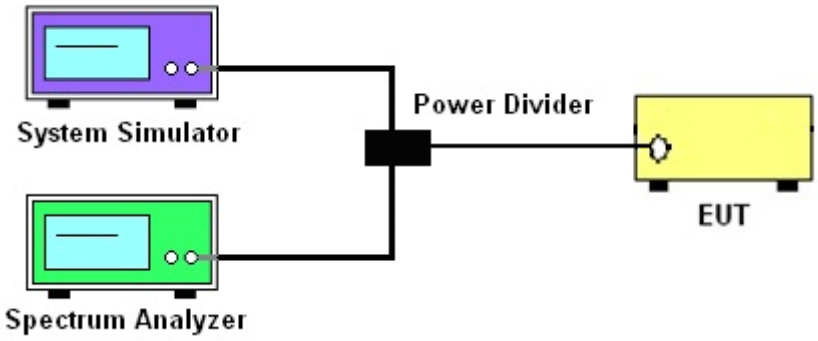
when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

4.3.3 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF)
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. Set EUT to transmit at maximum output power.
4. The signal analyzer’s CCDF measurement profile is enabled
5. Frequency = carrier center frequency
6. Measurement BW > Emission bandwidth of signal
7. When the duty cycle is less than 98%, then signal gating will be implemented on the spectrum analyzer by triggering from the system simulator.
8. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer.

Record the maximum PAPR level associated with a probability of 0.1%.

4.3.4 Test Setup



4.3.5 Test Results

Refer to Appendix A of this test report.

4.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement

4.4.1 Description of 99% Occupied Bandwidth and 26dB Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

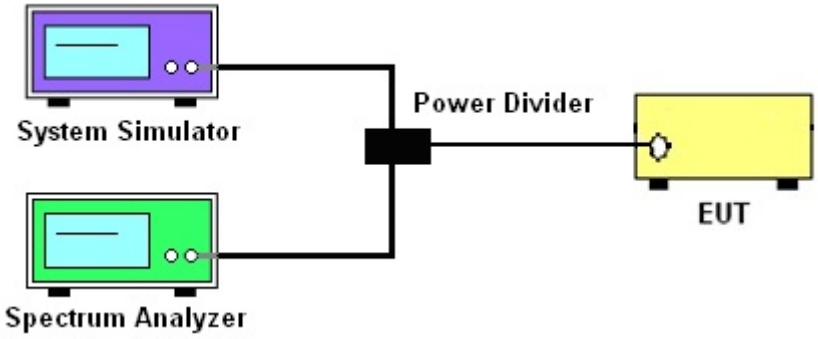
4.4.2 Test Procedures

1. The testing follows Subclause 5.4.3 of ANSI C63.26-2015
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth the bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
4. RBW = 1~5% of the expected OBW, VBW ≥3 x RBW
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace.(this is the reference value)
7. Determine the "-26 dB down amplitude" as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the "–X dB down amplitude" determined in

step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.

9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

4.4.3 Test Setup



4.4.4 Test Results

Refer to Appendix A of this test report.

4.5 Conducted Band Edge

4.5.1 Description of Conducted Band Edge Measurement

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel).in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to peak or peak hold power.

4.5.2 Limit

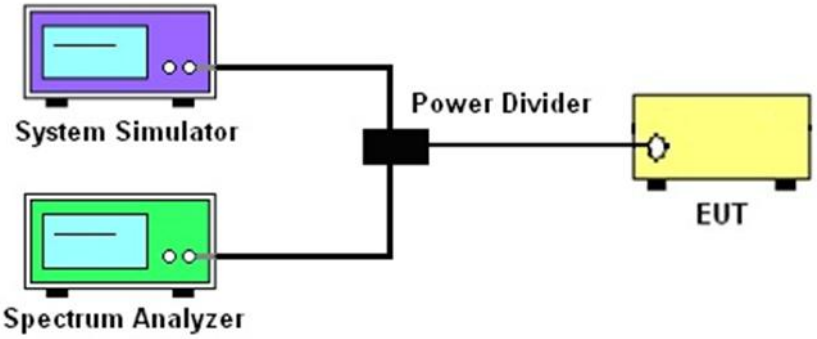
FCC: §22.917, §24.238, §27.53

The power of any emission outside of the authorized operating frequency ranges must beattenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

4.5.3 Test Procedures

1. The testing follows ANSI C63.26 Section 5.7.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. Start and stop frequency were set such that the band edge would be placed in the center of the plot
4. Span was set large enough so as to capture all out of band emissions near the band edge
5. RBW ≥1% of the emission bandwidth
6. VBW ≥ 3 x RBW
7. Detector = RMS
8. Number of sweep points ≥ 2 x Span/RBW
9. Trace mode = trace average for continuous emissions, max hold for pulse emissions
10. Sweep time = auto couple
11. The trace was allowed to stabilize
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
13. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
    = P(W) - [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.

4.5.4 Test Setup



4.5.5 Test Results

Refer to Appendix A of this test report.

4.6 Conducted Spurious Emission

4.6.1 Description of Conducted Spurious Emission Measurement

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyzer, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel).The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

4.6.2 Limit

FCC: §22.917, §24.238, §27.53

The power of any emission outside of the authorized operating frequency ranges must beattenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10^{th} harmonic.

4.6.3 Test Procedures

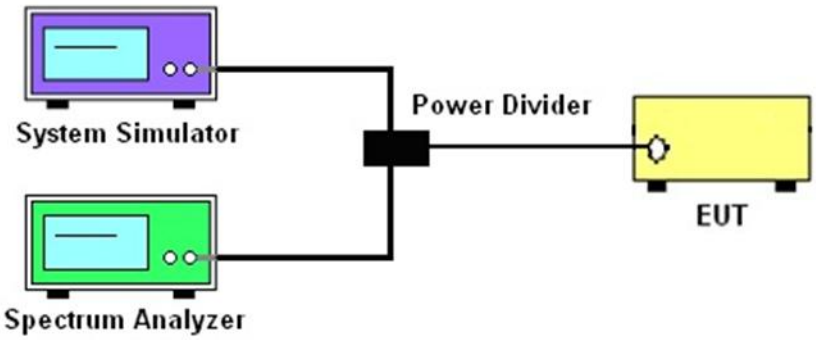
1. The testing follows ANSI C63.26 section 5.7.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

= P(W) - [43 + 10log(P)] (dB)

= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

= -13dBm.

4.6.4 Test Setup



4.6.5 Test Results

Refer to Appendix A of this test report.

4.7 Frequency Stability

4.7.1 Description of Frequency Stability Measurement

FCC §22.355

The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm formobile stations.

FCC §24.235 & §27.54

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

4.7.2 Test Condition

Temp. = −30° to +50°C

Voltage = (85% - 115%)

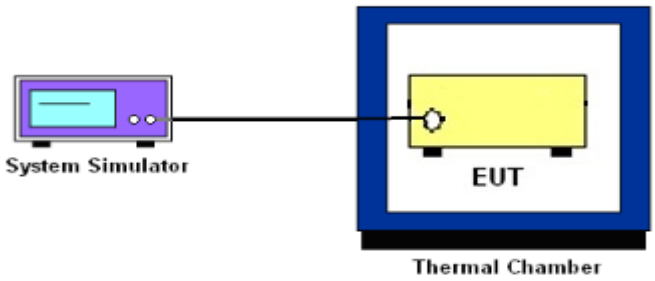
4.7.3 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

4.7.4 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5.
2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

4.7.5 Test Setup



4.7.6 Test Results

Refer to Appendix A of this test report.

5 Radiated Test Items

5.1 Measuring Instruments

See list of measuring instruments of this test report.

5.2 Field Strength of Spurious Radiation Measurement

5.2.1 Description of Field Strength of Spurious Radiated Measurement

FCC: §22.917, §24.238, §27.53

The power of any emission outside of the authorized operating frequency ranges must beattenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

5.2.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI / TIA-603-E-2016 Section 2.2.12.

Below 1GHz test procedure as below:

1. The EUT was powered ON and placed on a 80cm high table in the chamber. The antenna of thetransmitter was extended to its maximum length.
2. Make the measurement with the spectrum analyzer's RBW = 100KHz, VBW = 100KHz, takingrecord of maximum spurious emission.
3. The disturbance of the transmitter was maximized on the test receiver display by raising and loweringfrom 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) thereceive antenna and by rotating through 360° the turntable. After the fundamental emission wasmaximized, a field strength measurement was made.
4. Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontalpolarization.
5. The transmitter was then removed and replaced with another antenna. The center of the antenna wasapproximately at the same location as the center of the transmitter.
6. A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. Withboth the substitution and the receive antennas horizontally polarized, the receive antenna was raised andlowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusteduntil the measured field strength level in step 2) is obtained for this set of conditions.
7. The output power into the substitution antenna was then measured.
8. Steps 5) and 6) were repeated with both antennas polarized.
9. Calculate power in dBm by the following formula:

   ERP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)-2.15

   Where:

   Pd is the dipole equivalent power, Pg is the generator output into the substitution antenna, and the antennagain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or

an isotropicsource (dBi). The substitute level is equal to Pg [dBm] – cable loss [dB]. The calculated Pd levels are thencompared to the absolute spurious emission limit of -13dBm which is equivalent to the requiredminimumattenuation of 43 + 10log10(Power [Watts]).

Above 1GHz test procedure as below:

1. The EUT was powered ON and placed on a 150cm high table in the chamber. The antenna of the transmitter was extended to its maximum length.
2. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
3. The disturbance of the transmitter was maximized on the test receiver display by raising and loweringfrom 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) thereceive antenna and by rotating through 360° the turntable. After the fundamental emission wasmaximized, a field strength measurement was made.
4. Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontalpolarization.
5. The transmitter was then removed and replaced with another antenna. The center of the antenna wasapproximately at the same location as the center of the transmitter.
6. A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. Withboth the substitution and the receive antennas horizontally polarized, the receive antenna was raised andlowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusteduntil the measured field strength level in step 2) is obtained for this set of conditions.
7. The output power into the substitution antenna was then measured.
8. Steps 5) and 6) were repeated with both antennas polarized.
9. Calculate power in dBm by the following formula:

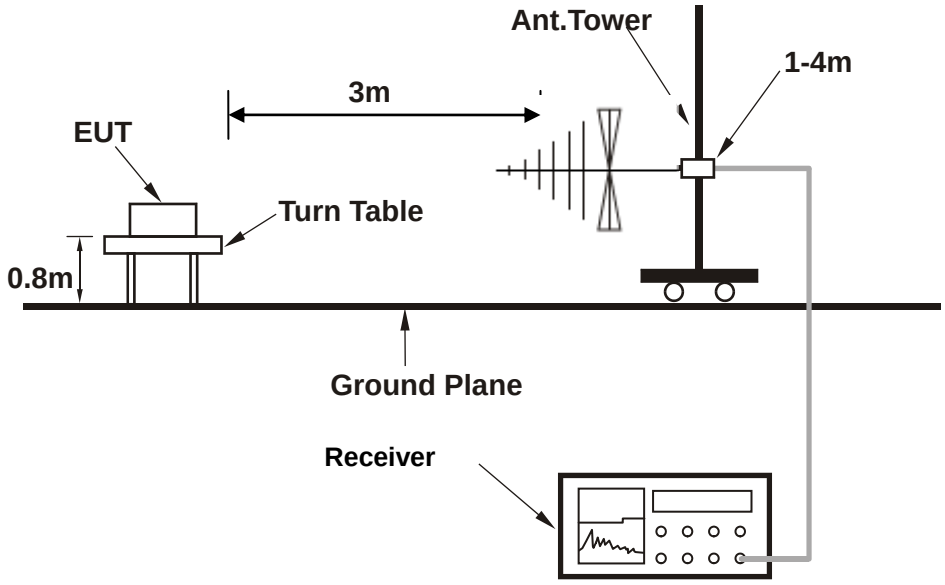
   EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)

   Where:

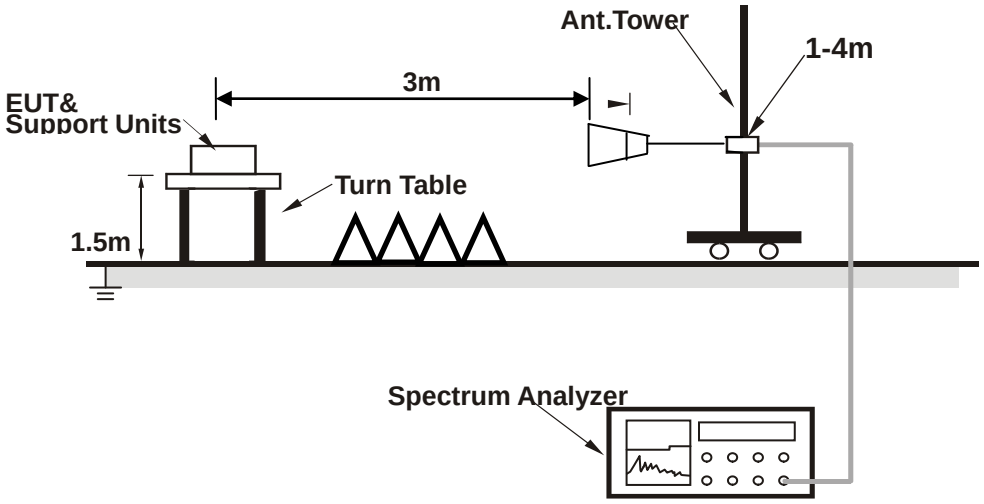
   Pd is the dipole equivalent power, Pg is the generator output into the substitution antenna, and the antennagain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropicsource (dBi). The substitute level is equal to Pg [dBm] – cable loss [dB]. The calculated Pd levels are thencompared to the absolute spurious emission limit of -13dBm which is equivalent to the requiredminimumattenuation of 43 + 10log10(Power [Watts]).

5.2.3 Test Setup

For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



5.2.4 Test Results

Refer to Appendix B of this test report.

6 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
Spectrum Analyzer	Keysight	N9010A	MY56070788	2019-01-23	2020-01-22	Conducted
Base Station	R&S	CMW500	164998	2019-01-23	2020-01-22	Conducted
Thermal Chamber	Sanmtest	SMC-408-CD	2435	2019/05/09	2020/05/08	Conducted
Signal Generator (Interferer)	Keysight	N5182B	MY56200384	2019-05-19	2020-05-18	Conducted
Signal Generator (Blocker)	Keysight	N5171B	MY56200661	2019-01-23	2020-01-22	Conducted

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV 40	101433	2019-02-18	2020-02-17	Radiation
Amplifier	Sonoma	310	363917	2019-01-22	2020-01-21	Radiation
Amplifier	Schwarzbeck	BBV 9718	327	2019-01-22	2020-01-21	Radiation
Amplifier	Narda	TTA1840-35-HG	2034380	2019/05/15	2020/05/14	Radiation
Loop Antenna	Schwarzbeck	FMZB 1519 B	1519B-051	2017/3/3	2020/3/2	Radiation
Broadband Antenna	Schwarzbeck	VULB 9168	9168-757	2017/3/3	2020/3/2	Radiation
Broadband Horn Antenna	Schwarzbeck	BBHA 9170	579	2017/3/3	2020/3/2	Radiation
Horn Antenna	Schwarzbeck	BBHA 9120 D	1677	2017/3/3	2020/3/2	Radiation
Horn Antenna	COM-POWER	AH-1840	101117	2018-06-20	2021-06-19	Radiation
Signal Generator (Blocker)	R&S	SMB100A	180717	2019-01-23	2020-01-22	Radiation
Test Software	Audix	E3	6.111221a	N/A	N/A	Radiation

N/A: No Calibration Required

7 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.5dB**

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.51dB**

Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.96dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

Effective (Isotropic) Radiated Power Output Data

Band	Channel	Power(dBm)	EIRP(dBm)	Limit(dBm)	Verdict
Band II	9262	22.09	24.69	33	PASS
Band II	9400	22.08	24.68	33	PASS
Band II	9538	22.06	24.66	33	PASS
Band IV	1312	22.61	25.21	30	PASS
Band IV	1413	22.76	25.36	30	PASS
Band IV	1513	22.89	25.49	30	PASS
Band V	4132	22.78	23.28	38.5	PASS
Band V	4182	22.76	23.26	38.5	PASS
Band V	4233	23.18	23.68	38.5	PASS

Band	Channel	SubTest	Power(dBm)	EIRP(dBm)	Limit(dBm)	Verdict
Band II	9262	HSDPA_Sub1	21.22	23.82	33	PASS
Band II	9262	HSDPA_Sub2	20.74	23.34	33	PASS
Band II	9262	HSDPA_Sub3	20.76	23.36	33	PASS
Band II	9262	HSDPA_Sub4	20.75	23.35	33	PASS
Band II	9400	HSDPA_Sub1	21.06	23.66	33	PASS
Band II	9400	HSDPA_Sub2	20.62	23.22	33	PASS
Band II	9400	HSDPA_Sub3	20.62	23.22	33	PASS
Band II	9400	HSDPA_Sub4	20.61	23.21	33	PASS
Band II	9538	HSDPA_Sub1	21.03	23.63	33	PASS
Band II	9538	HSDPA_Sub2	20.61	23.21	33	PASS
Band II	9538	HSDPA_Sub3	20.63	23.23	33	PASS
Band II	9538	HSDPA_Sub4	20.63	23.23	33	PASS
Band IV	1312	HSDPA_Sub1	21.55	24.15	30	PASS
Band IV	1312	HSDPA_Sub2	21.09	23.69	30	PASS
Band IV	1312	HSDPA_Sub3	21.11	23.71	30	PASS
Band IV	1312	HSDPA_Sub4	21.11	23.71	30	PASS
Band IV	1413	HSDPA_Sub1	21.70	24.3	30	PASS

Band IV	1413	HSDPA_Sub2	21.18	23.78	30	PASS
Band IV	1413	HSDPA_Sub3	21.23	23.83	30	PASS
Band IV	1413	HSDPA_Sub4	21.23	23.83	30	PASS
Band IV	1513	HSDPA_Sub1	21.75	24.35	30	PASS
Band IV	1513	HSDPA_Sub2	21.32	23.92	30	PASS
Band IV	1513	HSDPA_Sub3	21.33	23.93	30	PASS
Band IV	1513	HSDPA_Sub4	21.34	23.94	30	PASS
Band V	4132	HSDPA_Sub1	21.85	22.35	38.5	PASS
Band V	4132	HSDPA_Sub2	21.37	21.87	38.5	PASS
Band V	4132	HSDPA_Sub3	21.34	21.84	38.5	PASS
Band V	4132	HSDPA_Sub4	21.32	21.82	38.5	PASS
Band V	4182	HSDPA_Sub1	21.76	22.26	38.5	PASS
Band V	4182	HSDPA_Sub2	21.40	21.9	38.5	PASS
Band V	4182	HSDPA_Sub3	21.40	21.9	38.5	PASS
Band V	4182	HSDPA_Sub4	21.39	21.89	38.5	PASS
Band V	4233	HSDPA_Sub1	22.21	22.71	38.5	PASS
Band V	4233	HSDPA_Sub2	21.81	22.31	38.5	PASS
Band V	4233	HSDPA_Sub3	21.79	22.29	38.5	PASS
Band V	4233	HSDPA_Sub4	21.79	22.29	38.5	PASS

Band	Channel	SubTest	Power(dBm)	EIRP(dBm)	Limit(dBm)	Verdict
Band II	9262	HSUPA_Sub1	20.60	23.2	33	PASS
Band II	9262	HSUPA_Sub2	19.66	22.26	33	PASS
Band II	9262	HSUPA_Sub3	19.35	21.95	33	PASS
Band II	9262	HSUPA_Sub4	20.08	22.68	33	PASS
Band II	9262	HSUPA_Sub5	20.89	23.49	33	PASS
Band II	9400	HSUPA_Sub1	20.88	23.48	33	PASS
Band II	9400	HSUPA_Sub2	19.48	22.08	33	PASS
Band II	9400	HSUPA_Sub3	19.21	21.81	33	PASS
Band II	9400	HSUPA_Sub4	19.93	22.53	33	PASS
Band II	9400	HSUPA_Sub5	21.27	23.87	33	PASS
Band II	9538	HSUPA_Sub1	20.81	23.41	33	PASS
Band II	9538	HSUPA_Sub2	19.90	22.5	33	PASS

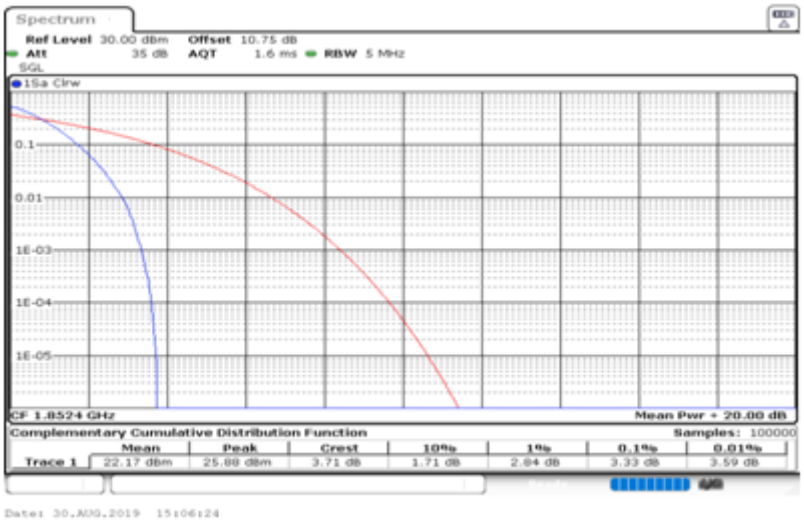
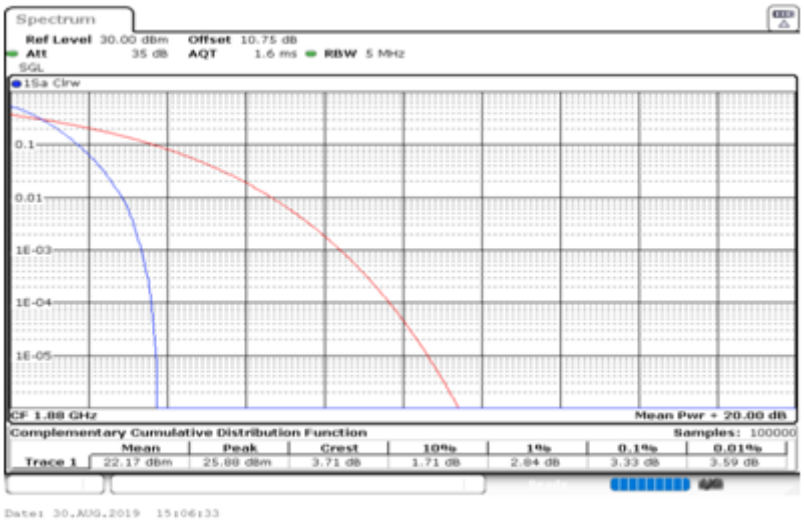
Band II	9538	HSUPA_Sub3	19.04	21.64	33	PASS
Band II	9538	HSUPA_Sub4	19.93	22.53	33	PASS
Band II	9538	HSUPA_Sub5	21.24	23.84	33	PASS
Band IV	1312	HSUPA_Sub1	21.20	23.8	30	PASS
Band IV	1312	HSUPA_Sub2	20.07	22.67	30	PASS
Band IV	1312	HSUPA_Sub3	20.37	22.97	30	PASS
Band IV	1312	HSUPA_Sub4	20.87	23.47	30	PASS
Band IV	1312	HSUPA_Sub5	21.36	23.96	30	PASS
Band IV	1413	HSUPA_Sub1	21.22	23.82	30	PASS
Band IV	1413	HSUPA_Sub2	20.52	23.12	30	PASS
Band IV	1413	HSUPA_Sub3	20.03	22.63	30	PASS
Band IV	1413	HSUPA_Sub4	21.06	23.66	30	PASS
Band IV	1413	HSUPA_Sub5	21.36	23.96	30	PASS
Band IV	1513	HSUPA_Sub1	21.50	24.1	30	PASS
Band IV	1513	HSUPA_Sub2	20.78	23.38	30	PASS
Band IV	1513	HSUPA_Sub3	19.74	22.34	30	PASS
Band IV	1513	HSUPA_Sub4	20.62	23.22	30	PASS
Band IV	1513	HSUPA_Sub5	21.64	24.24	30	PASS
Band V	4132	HSUPA_Sub1	21.51	22.01	38.5	PASS
Band V	4132	HSUPA_Sub2	20.77	21.27	38.5	PASS
Band V	4132	HSUPA_Sub3	19.77	20.27	38.5	PASS
Band V	4132	HSUPA_Sub4	20.60	21.1	38.5	PASS
Band V	4132	HSUPA_Sub5	21.47	21.97	38.5	PASS
Band V	4182	HSUPA_Sub1	20.99	21.49	38.5	PASS
Band V	4182	HSUPA_Sub2	20.49	20.99	38.5	PASS
Band V	4182	HSUPA_Sub3	20.20	20.7	38.5	PASS
Band V	4182	HSUPA_Sub4	20.90	21.4	38.5	PASS
Band V	4182	HSUPA_Sub5	21.47	21.97	38.5	PASS
Band V	4233	HSUPA_Sub1	21.55	22.05	38.5	PASS

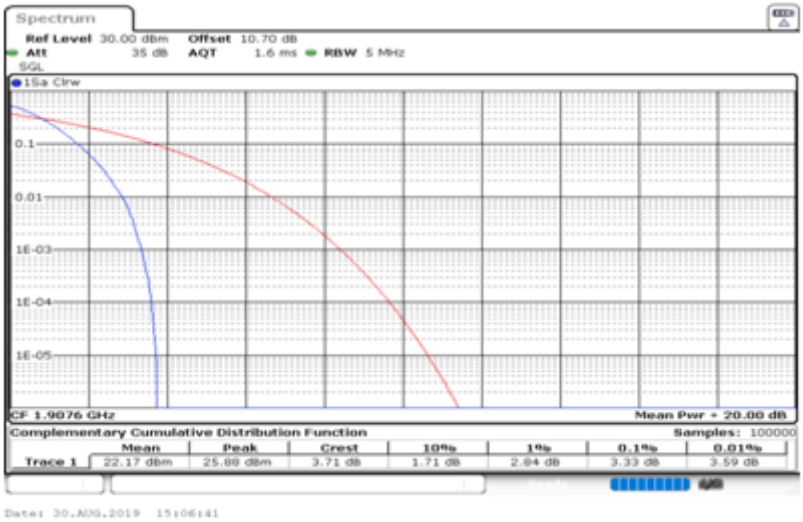
Band V	4233	HSUPA_Sub2	20.55	21.05	38.5	PASS
Band V	4233	HSUPA_Sub3	20.53	21.03	38.5	PASS
Band V	4233	HSUPA_Sub4	21.15	21.65	38.5	PASS
Band V	4233	HSUPA_Sub5	22.10	22.6	38.5	PASS

Peak-to-Average Ratio

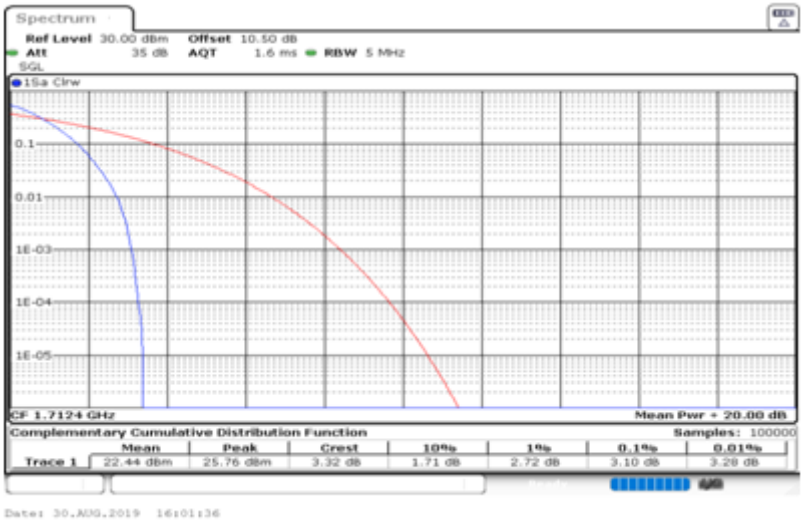
Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band II	9262	3.33	13	PASS
Band II	9400	3.33	13	PASS
Band II	9538	3.33	13	PASS
Band IV	1312	3.10	13	PASS
Band IV	1413	3.10	13	PASS
Band IV	1513	3.10	13	PASS
Band V	4132	2.90	13	PASS
Band V	4182	2.90	13	PASS
Band V	4233	2.90	13	PASS

Test Graphs

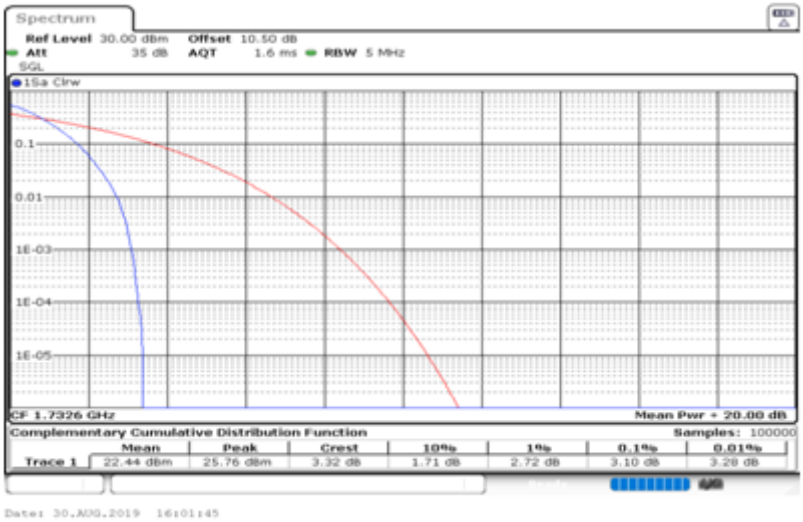
Band II-9262

Band II-9400

Band II-9538



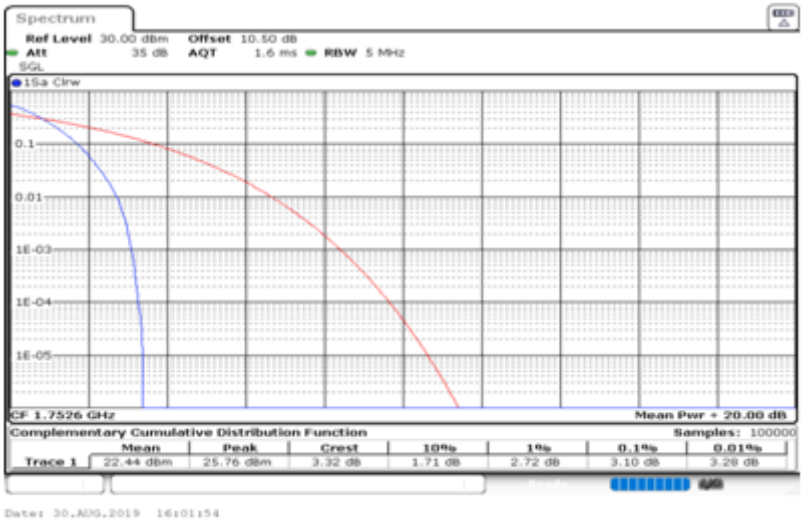
Band IV-1312



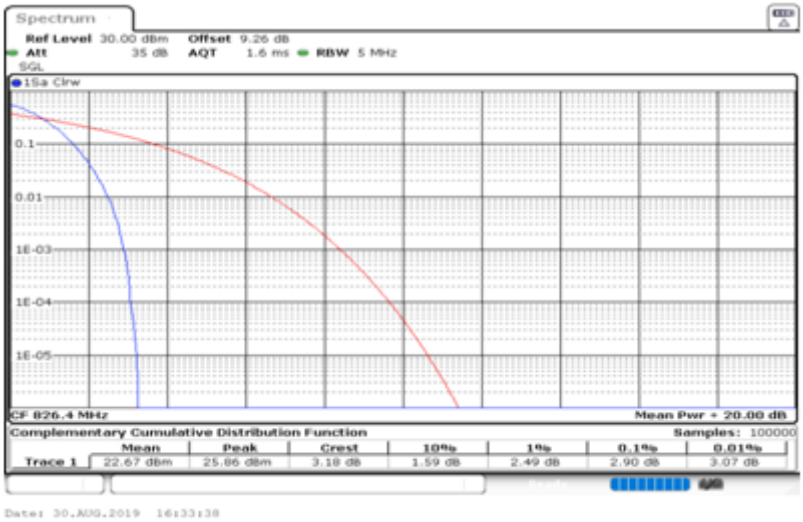
Band IV-1413



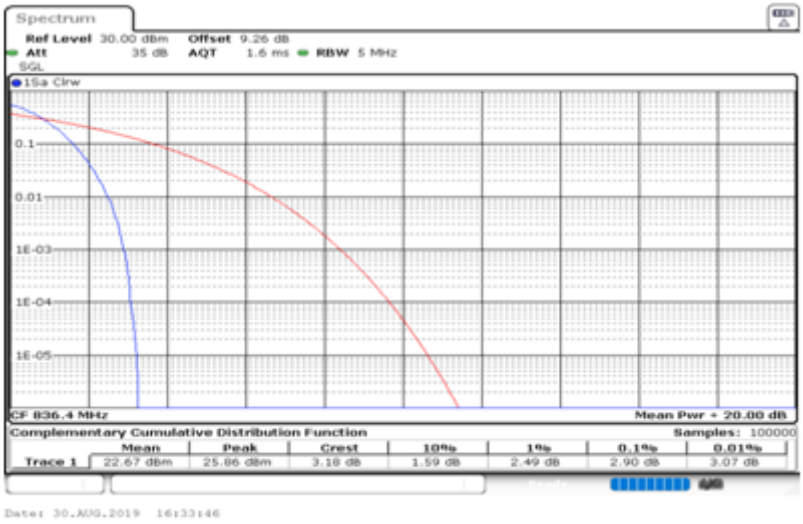
Band IV-1513



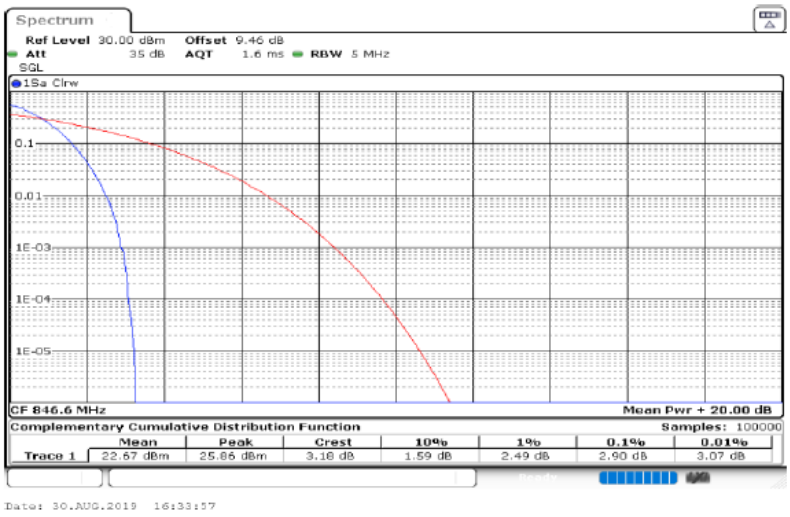
Band V-4132



Band V-4182



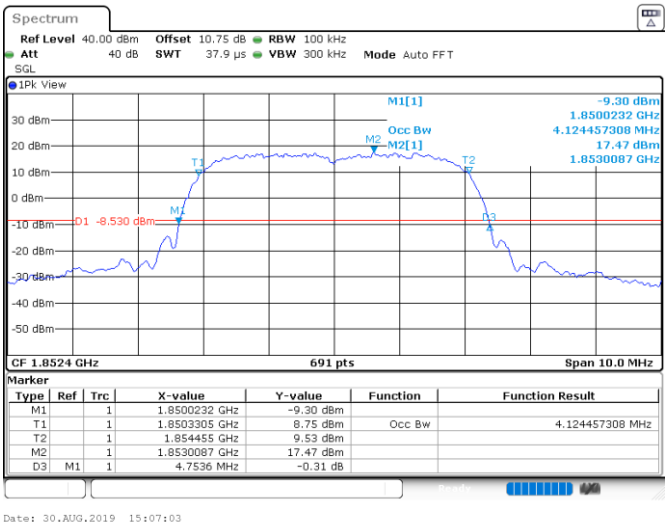
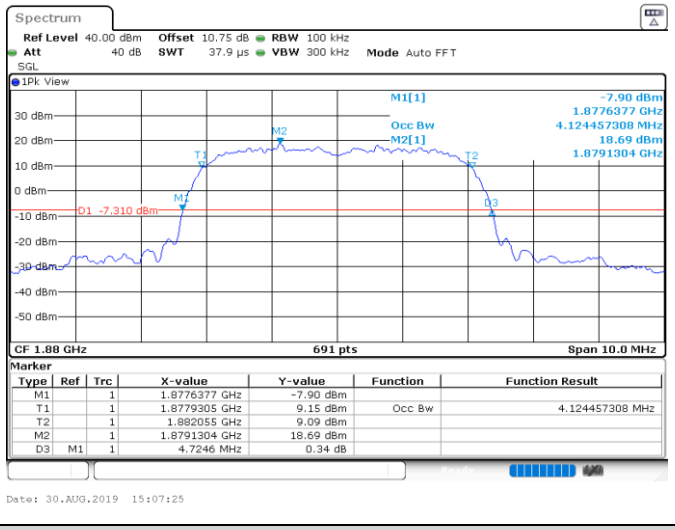
Band V-4233

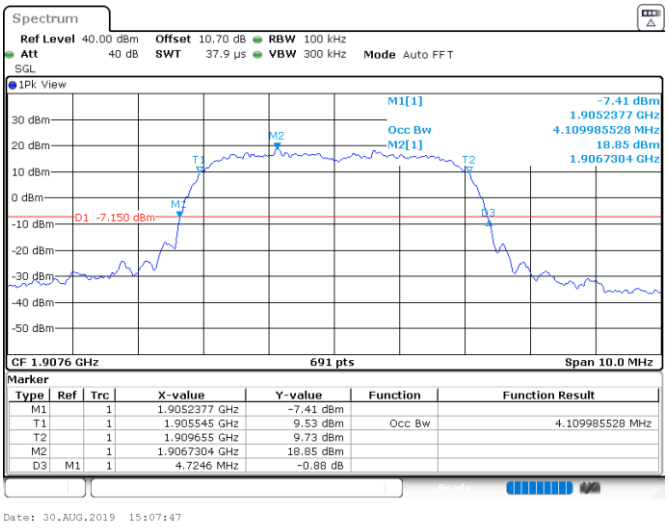

Spectrum
Ref Level 30.00 dBm Offset 9.46 dB
Att 35 dB AQT 1.6 ms RBW 5 MHz
SGL
1Sa Clrw
0.1
0.01
1E-03
1E-04
1E-05
CF 846.6 MHz
Mean Pwr + 20.00 dB
Complementary Cumulative Distribution Function
Samples: 100000
Mean Peak Crest 10% 1% 0.1% 0.01%
Trace 1 22.67 dBm 25.86 dBm 3.18 dB 1.59 dB 2.49 dB 2.90 dB 3.07 dB
Date: 30.AUG.2019 16:33:57

26dB Bandwidth and Occupied Bandwidth

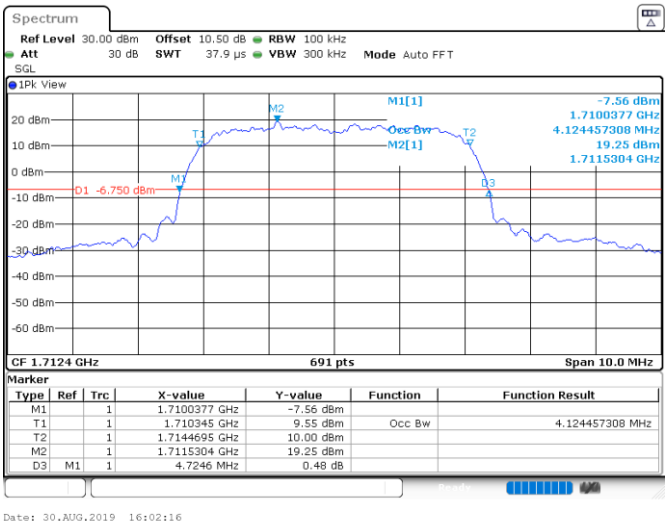
Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
Band II	9262	4124.5	4754	---	PASS
Band II	9400	4124.5	4725	---	PASS
Band II	9538	4110.0	4725	---	PASS
Band IV	1312	4124.5	4725	---	PASS
Band IV	1413	4110.0	4696	---	PASS
Band IV	1513	4110.0	4739	---	PASS
Band V	4132	4153.4	4783	---	PASS
Band V	4182	4138.9	4739	---	PASS
Band V	4233	4138.9	4739	---	PASS

Test Graphs

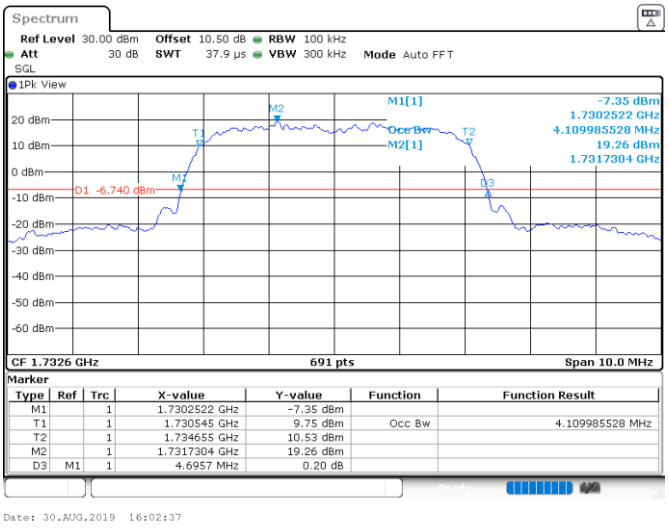
Band II-9262

Band II-9400

Band II-9538



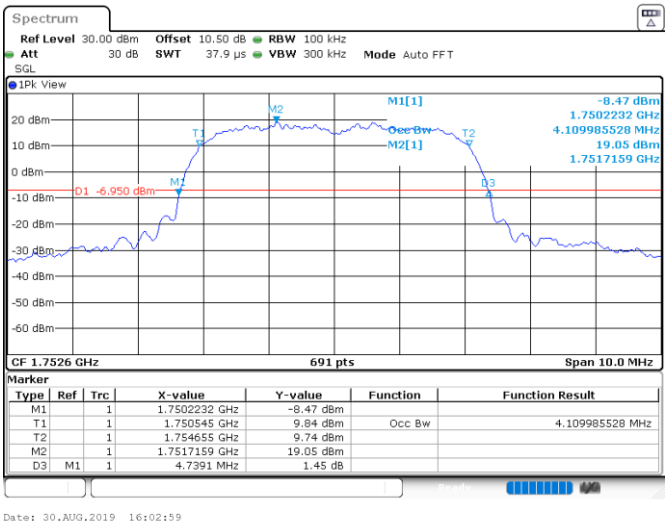
Band IV-1312



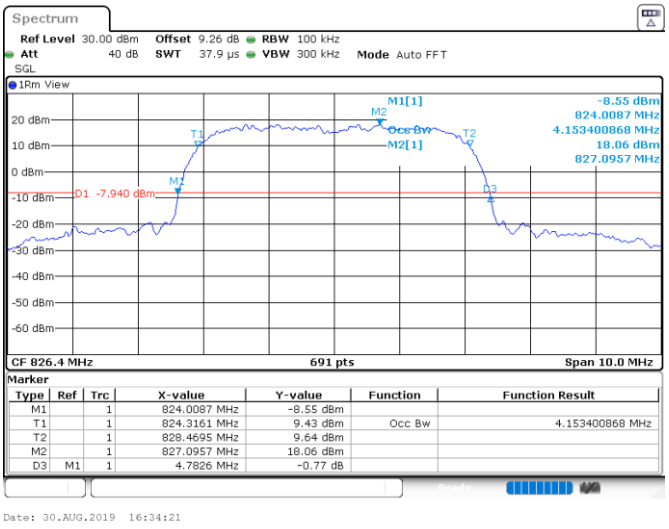
Band IV-1413



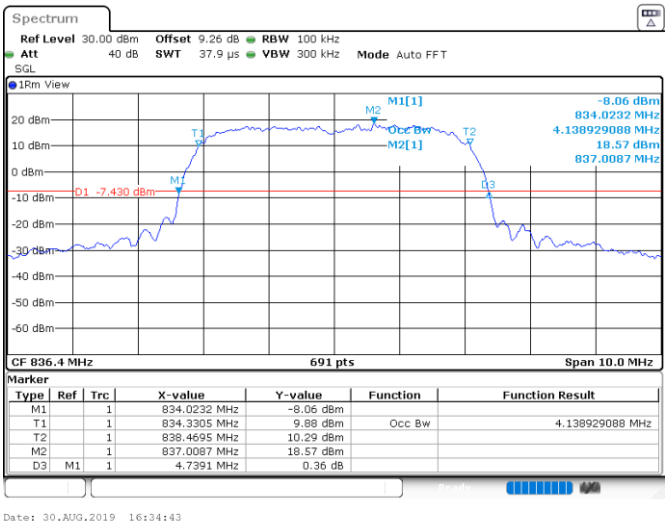
Band IV-1513



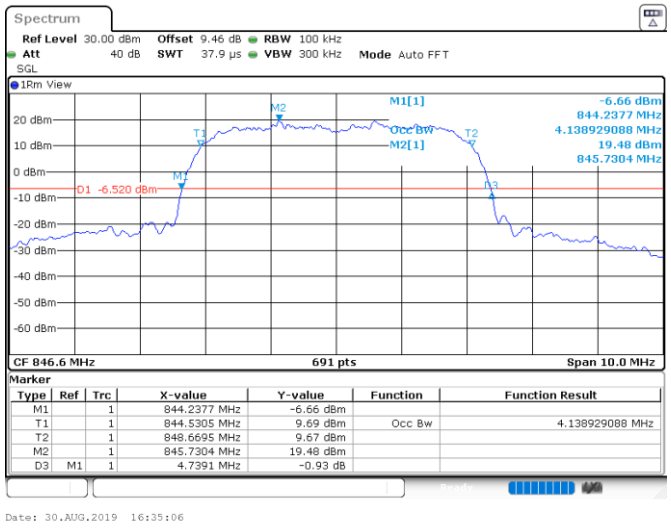
Band V-4132



Band V-4182



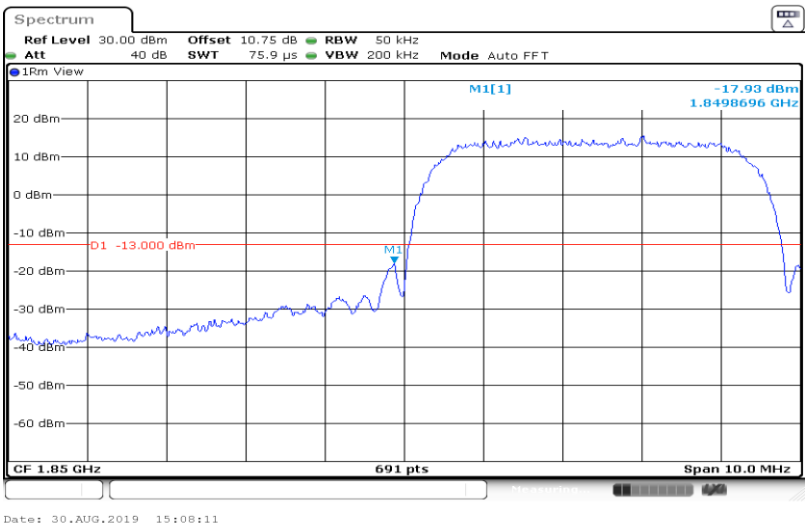
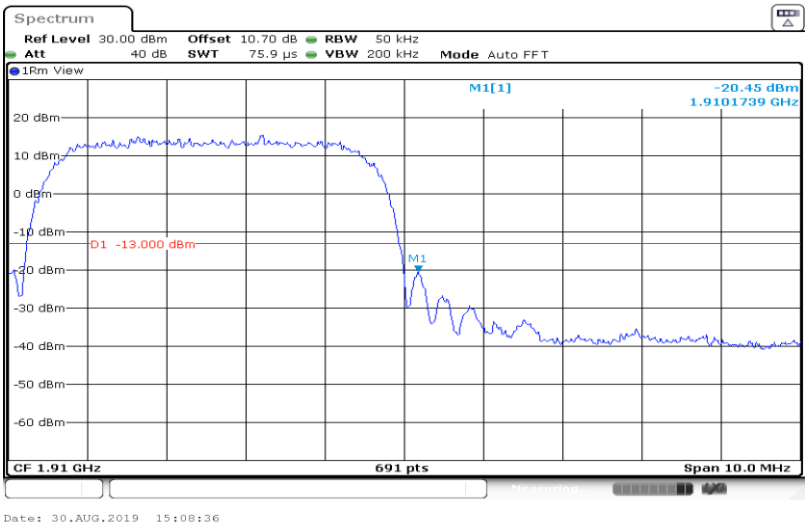
Band V-4233

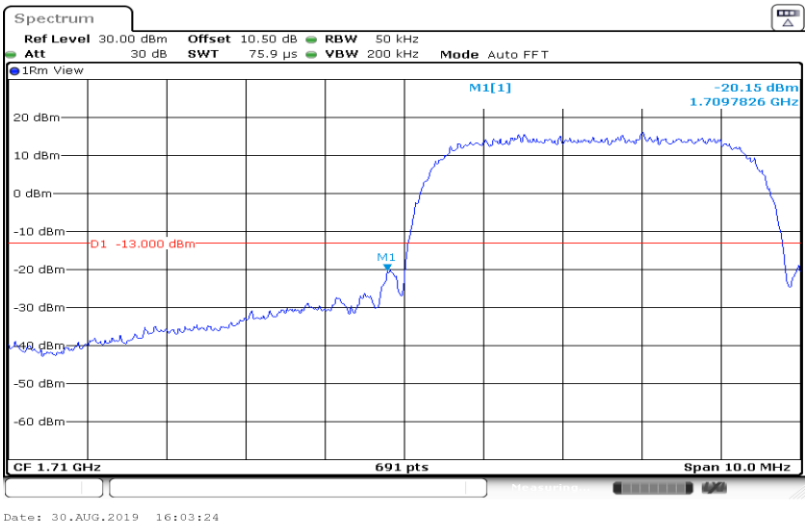

Spectrum
Ref Level 30.00 dBm Offset 9.46 dB RBW 100 kHz
Att 40 dB SWT 37.9 µs VBW 300 kHz Mode Auto FFT
SGL
1Rm View
M1[1] -6.66 dBm
844.2377 MHz
Occ Bw 4.138929088 MHz
M2[1] 19.48 dBm
845.7304 MHz
D1 -6.520 dBm
CF 846.6 MHz
691 pts
Span 10.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 844.2377 MHz -6.66 dBm
T1 1 844.5305 MHz 9.69 dBm Occ Bw 4.138929088 MHz
T2 1 848.6695 MHz 9.67 dBm
M2 1 845.7304 MHz 19.48 dBm
D3 M1 1 4.7391 MHz -0.93 dB
Date: 30.AUG.2019 16:35:06

Conducted Band Edge

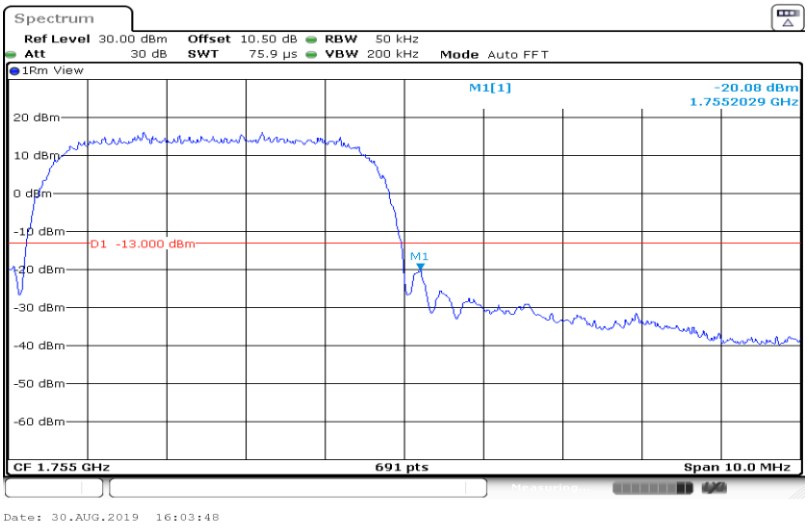
Band	Channel	Value(dBm)	Limit(dBm)	Verdict
Band II	9262	-17.93	-13	PASS
Band II	9538	-20.45	-13	PASS
Band IV	1312	-20.15	-13	PASS
Band IV	1513	-20.08	-13	PASS
Band V	4132	-16.27	-13	PASS
Band V	4233	-18.65	-13	PASS

Test Graphs

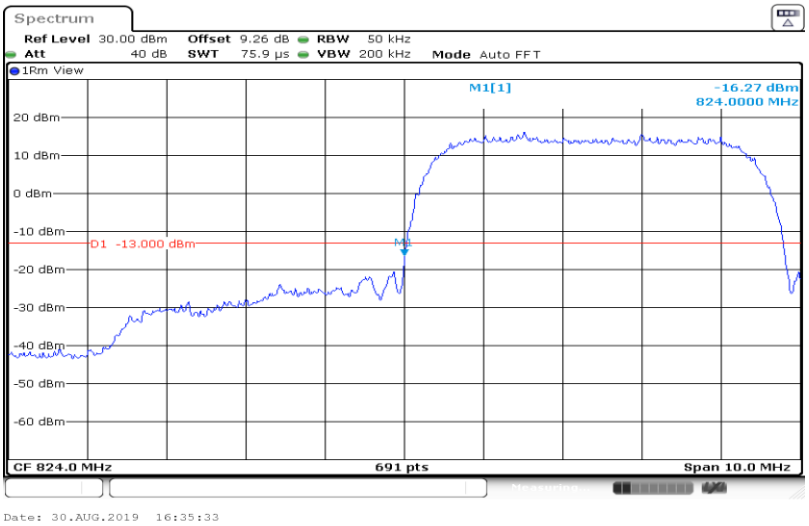
Band II-9262

Band II-9538

Band IV-1312



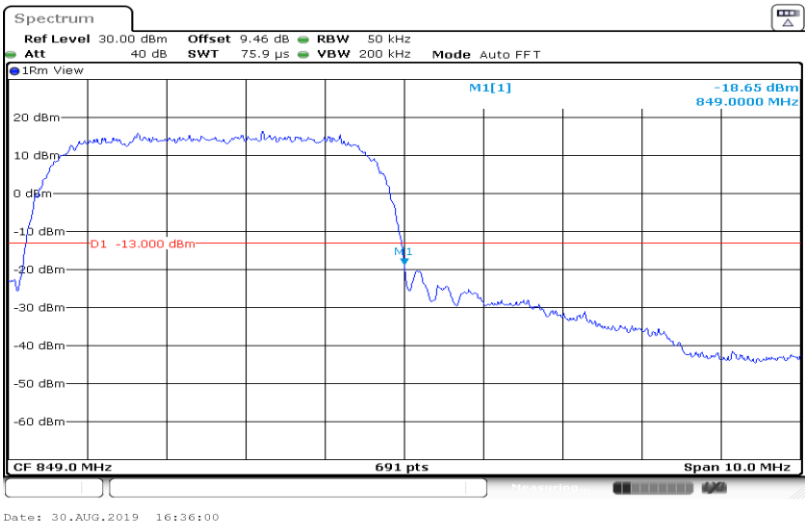
Band IV-1513



Band V-4132


Spectrum
Ref Level 30.00 dBm Offset 9.26 dB RBW 50 kHz
Att 40 dB SWT 75.9 µs VBW 200 kHz Mode Auto FFT
1Rm View
M1[1] -16.27 dBm
824.0000 MHz
D1 -13.000 dBm
CF 824.0 MHz
691 pts
Span 10.0 MHz
Date: 30.AUG.2019 16:35:33

Band V-4233

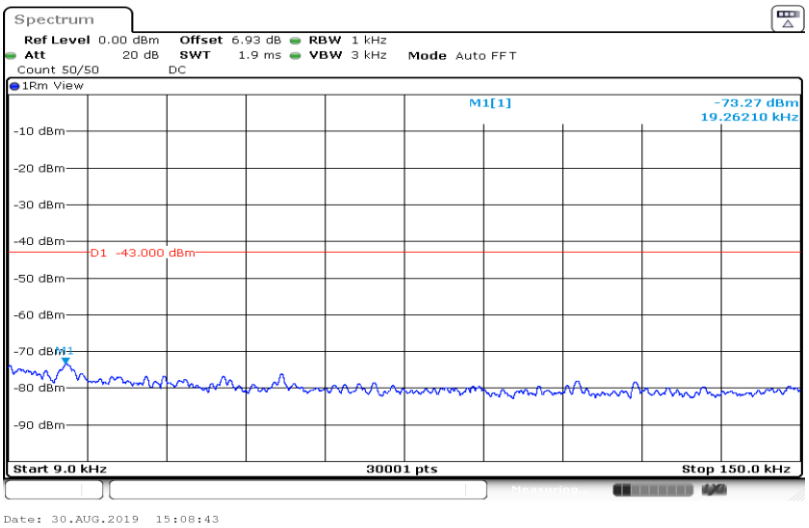

Spectrum
Ref Level 30.00 dBm Offset 9.46 dB RBW 50 kHz
Att 40 dB SWT 75.9 µs VBW 200 kHz Mode Auto FFT
1Rm View
M1[1] -18.65 dBm
849.0000 MHz
D1 -13.000 dBm
CF 849.0 MHz
691 pts
Span 10.0 MHz
Date: 30.AUG.2019 16:36:00

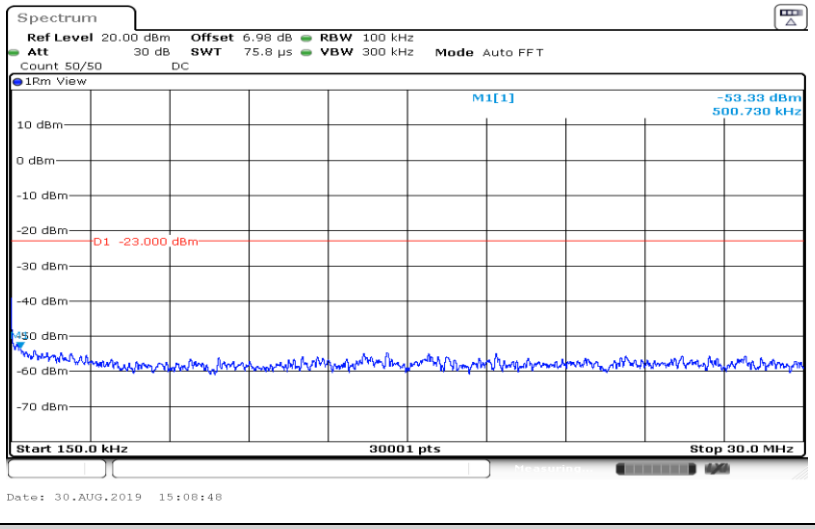
Conducted Spurious Emission

Band	Channel	Frequency Range(Mhz)	Value(dBm)	Limit(dBm)	Verdict
Band II	9262	0.009~0.15	-73.27	-43	PASS
Band II	9262	0.15~30	-53.33	-23	PASS
Band II	9262	30~1000	-38.40	-13	PASS
Band II	9262	1000~3000	-43.76	-13	PASS
Band II	9262	3000~10000	-52.17	-13	PASS
Band II	9262	10000~20000	-43.66	-13	PASS
Band II	9400	0.009~0.15	-72.98	-43	PASS
Band II	9400	0.15~30	-53.76	-23	PASS
Band II	9400	30~1000	-38.42	-13	PASS
Band II	9400	1000~3000	-43.91	-13	PASS
Band II	9400	3000~10000	-52.12	-13	PASS
Band II	9400	10000~20000	-43.76	-13	PASS
Band II	9538	0.009~0.15	-73.92	-43	PASS
Band II	9538	0.15~30	-52.99	-23	PASS
Band II	9538	30~1000	-37.83	-13	PASS
Band II	9538	1000~3000	-43.90	-13	PASS
Band II	9538	3000~10000	-51.95	-13	PASS
Band II	9538	10000~20000	-43.58	-13	PASS
Band IV	1312	0.009~0.15	-72.77	-43	PASS
Band IV	1312	0.15~30	-54.39	-23	PASS
Band IV	1312	30~1000	-36.78	-13	PASS
Band IV	1312	1000~3000	-43.42	-13	PASS
Band IV	1312	3000~10000	-51.54	-13	PASS
Band IV	1312	10000~20000	-43.28	-13	PASS
Band IV	1413	0.009~0.15	-74.73	-43	PASS
Band IV	1413	0.15~30	-51.37	-23	PASS
Band IV	1413	30~1000	-37.76	-13	PASS
Band IV	1413	1000~3000	-43.48	-13	PASS
Band IV	1413	3000~10000	-51.55	-13	PASS
Band IV	1413	10000~20000	-43.26	-13	PASS
Band IV	1513	0.009~0.15	-75.01	-43	PASS
Band IV	1513	0.15~30	-51.82	-23	PASS
Band IV	1513	30~1000	-37.75	-13	PASS

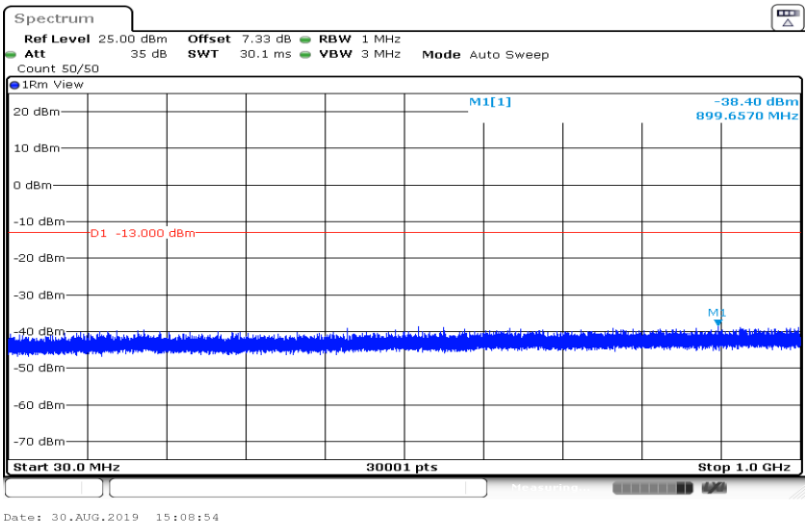
Band IV	1513	1000~3000	-43.46	-13	PASS
Band IV	1513	3000~10000	-51.62	-13	PASS
Band IV	1513	10000~20000	-42.97	-13	PASS
Band V	4132	0.009~0.15	-74.60	-33	PASS
Band V	4132	0.15~30	-51.27	-13	PASS
Band V	4132	30~1000	-37.97	-13	PASS
Band V	4132	1000~3000	-43.84	-13	PASS
Band V	4132	3000~10000	-52.16	-13	PASS
Band V	4132	10000~18000	-43.56	-13	PASS
Band V	4182	0.009~0.15	-74.15	-33	PASS
Band V	4182	0.15~30	-51.88	-13	PASS
Band V	4182	30~1000	-38.05	-13	PASS
Band V	4182	1000~3000	-43.85	-13	PASS
Band V	4182	3000~10000	-52.08	-13	PASS
Band V	4182	10000~18000	-43.69	-13	PASS
Band V	4233	0.009~0.15	-73.68	-33	PASS
Band V	4233	0.15~30	-52.58	-13	PASS
Band V	4233	30~1000	-38.06	-13	PASS
Band V	4233	1000~3000	-43.84	-13	PASS
Band V	4233	3000~10000	-52.15	-13	PASS
Band V	4233	10000~18000	-43.61	-13	PASS

Test Graphs

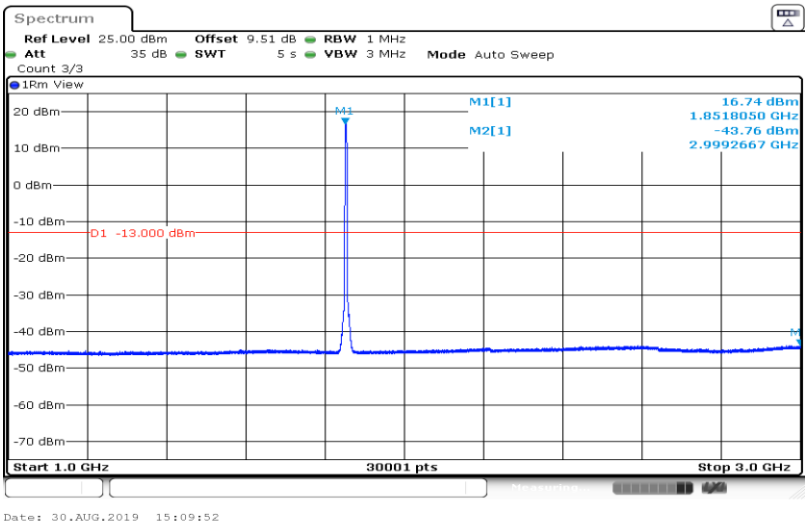
Band II-9262-0.009~0.15


Band II-9262-0.15~30


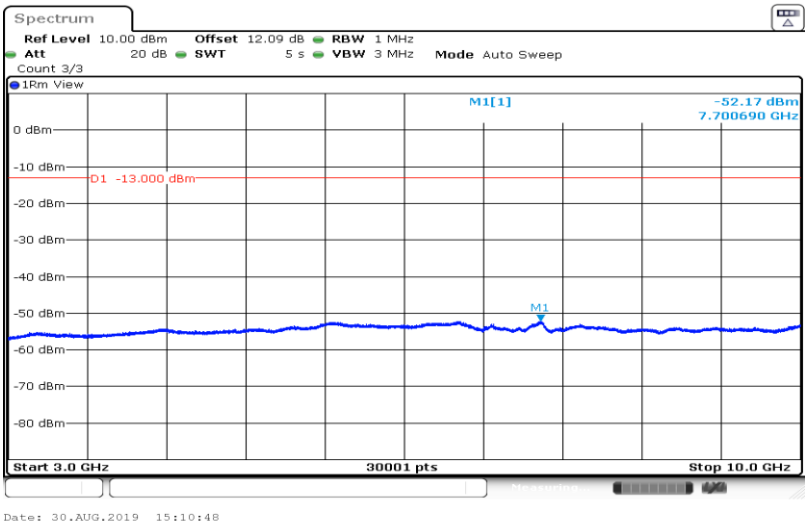
Band II-9262-30~1000



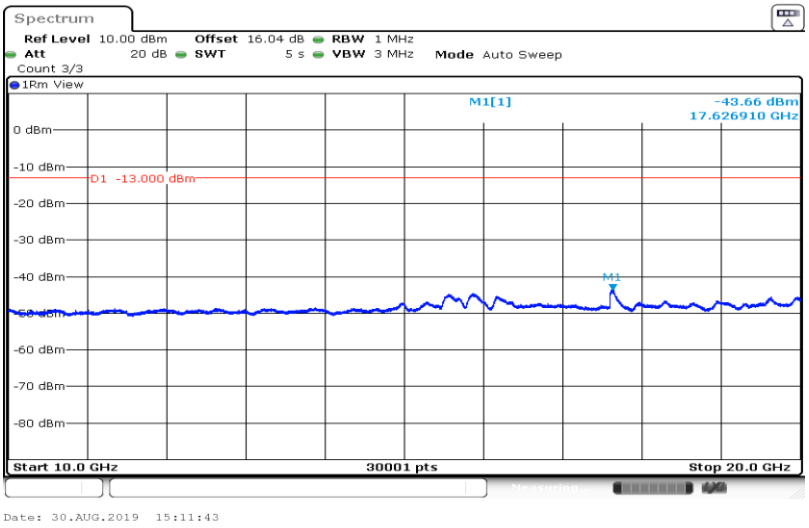
Band II-9262-1000~3000



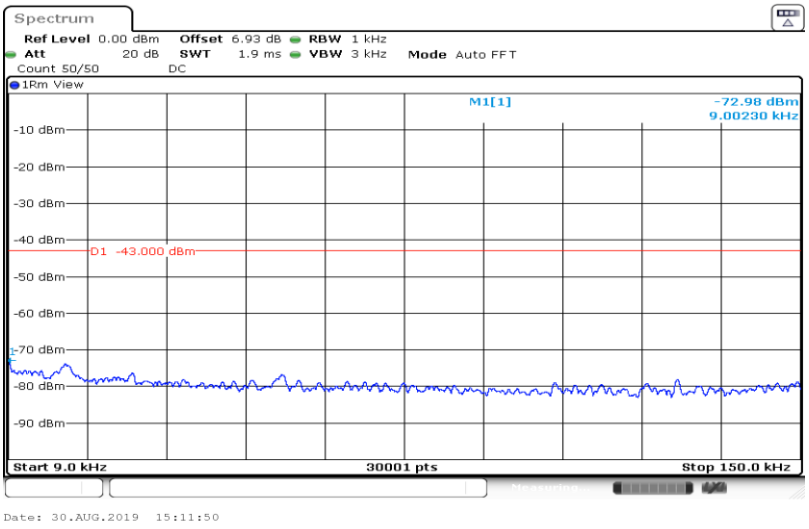
Band II-9262-3000~10000



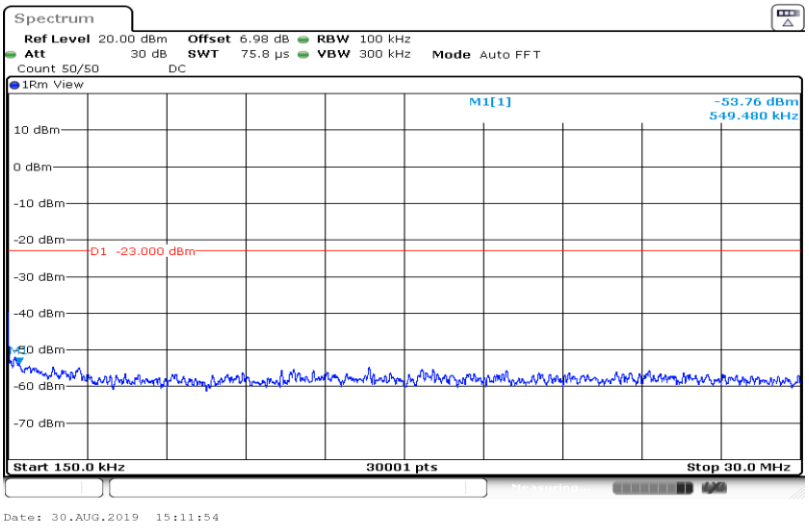
Band II-9262-10000~20000



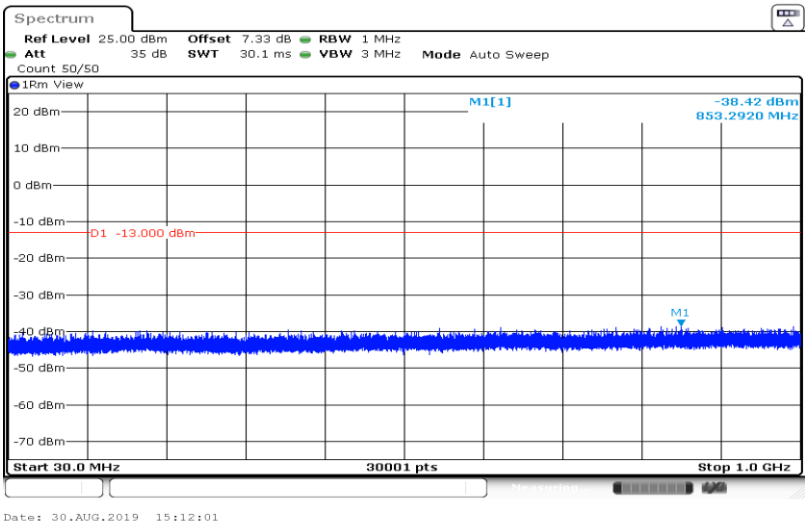
Band II-9400-0.009~0.15



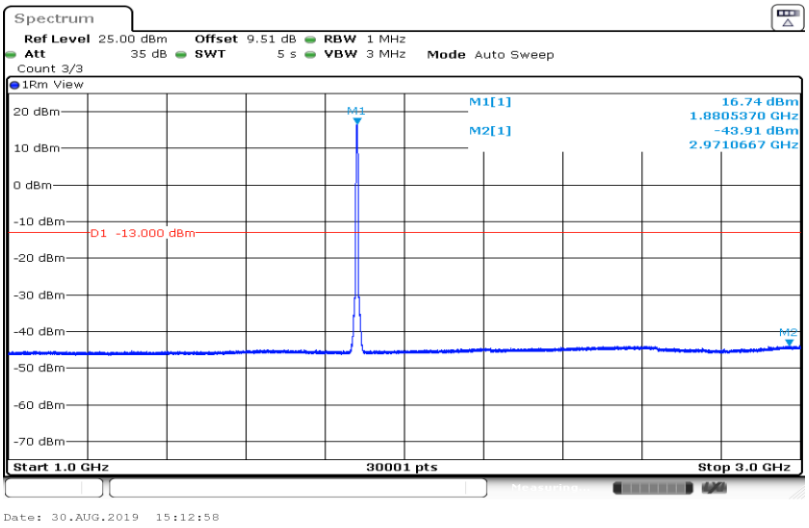
Band II-9400-0.15~30



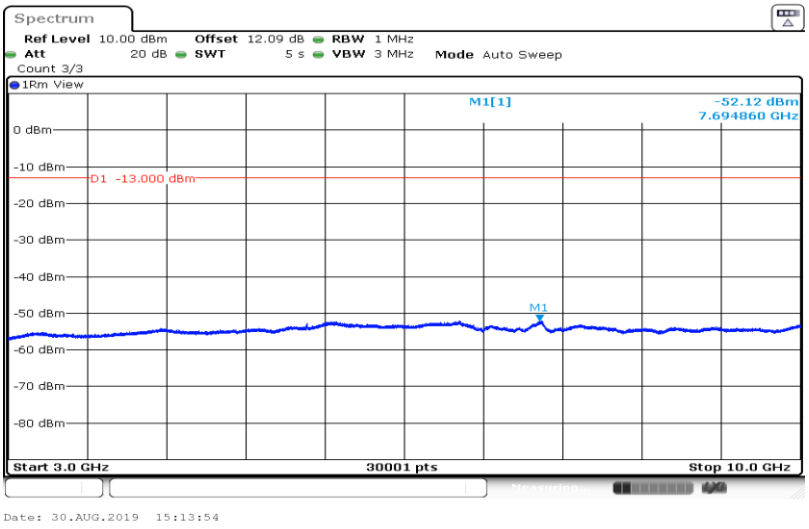
Band II-9400-30~1000



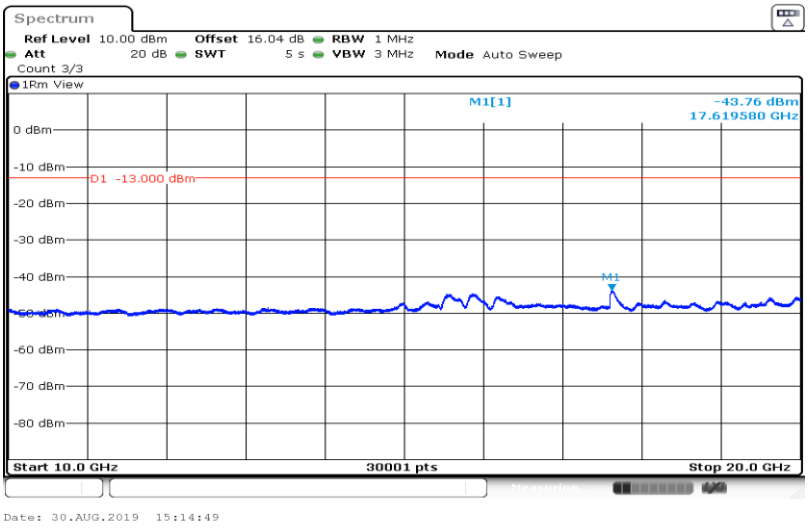
Band II-9400-1000~3000



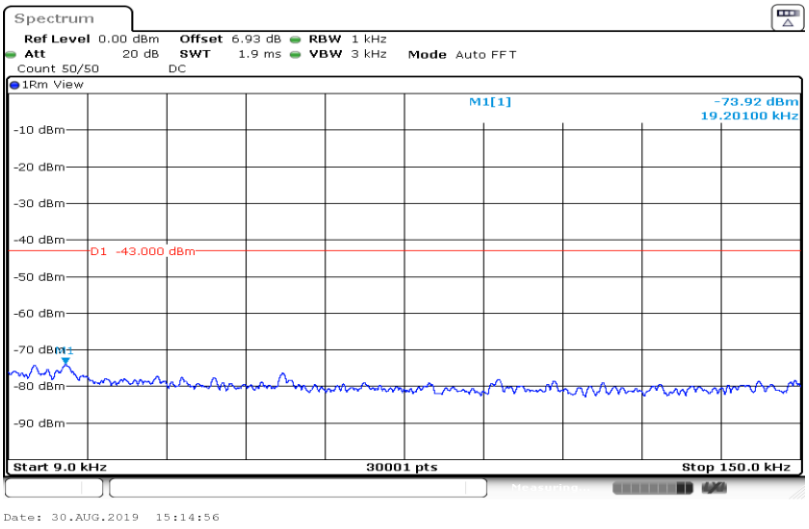
Band II-9400-3000~10000



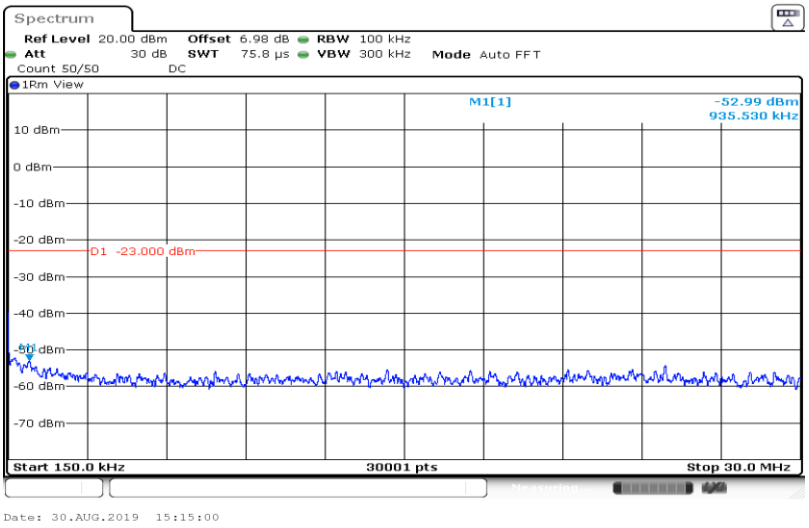
Band II-9400-10000~20000



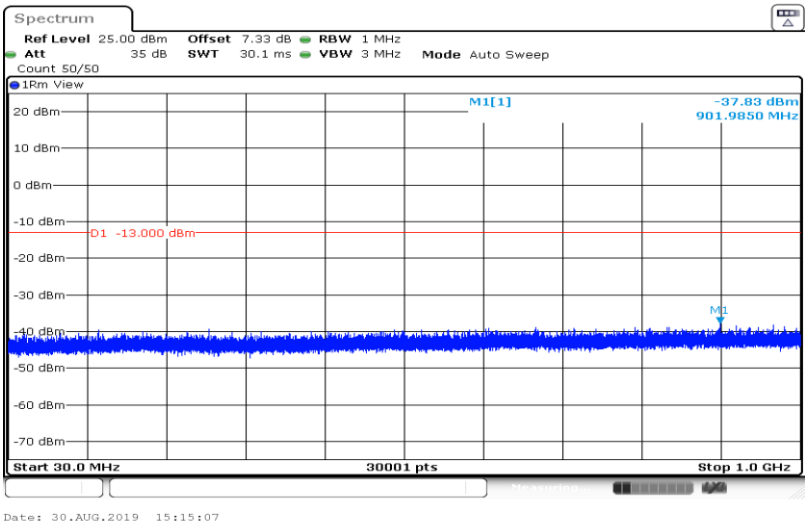
Band II-9538-0.009~0.15



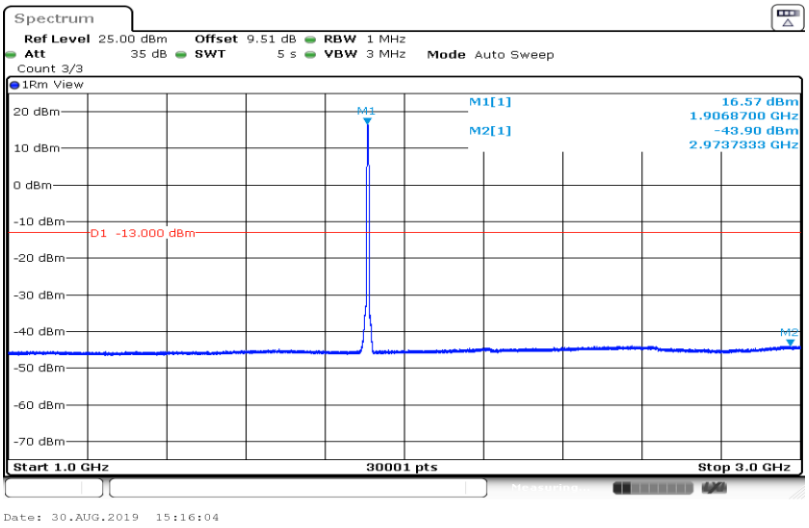
Band II-9538-0.15~30



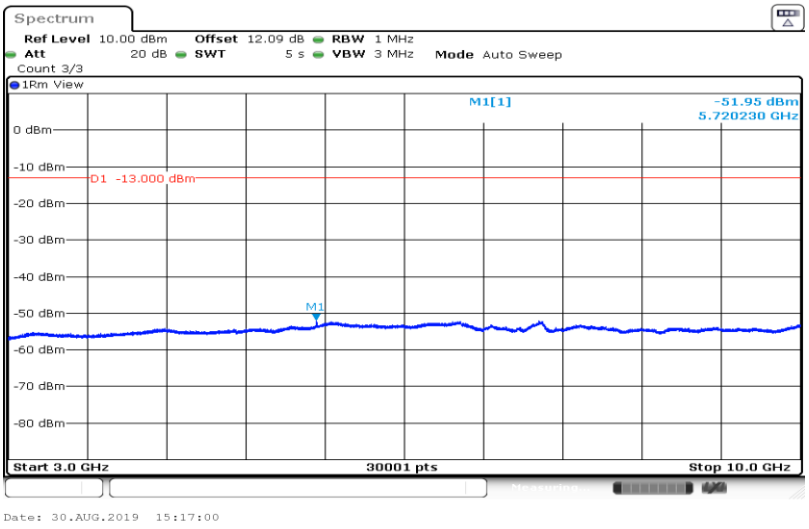
Band II-9538-30~1000



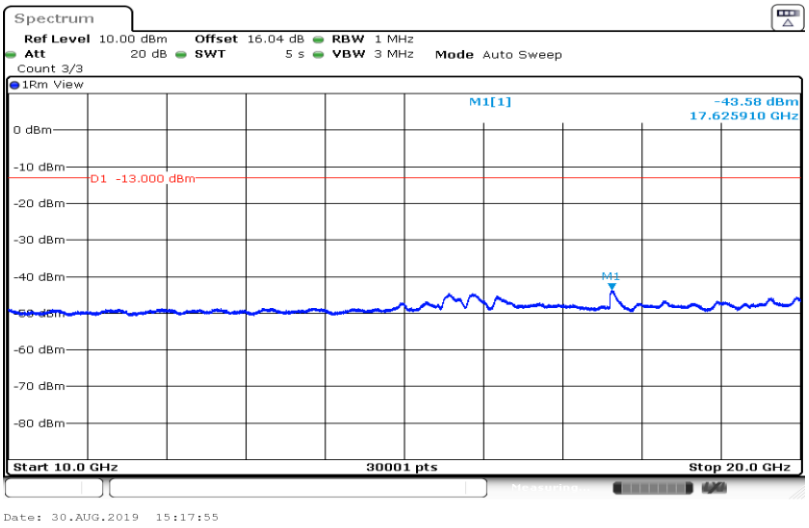
Band II-9538-1000~3000



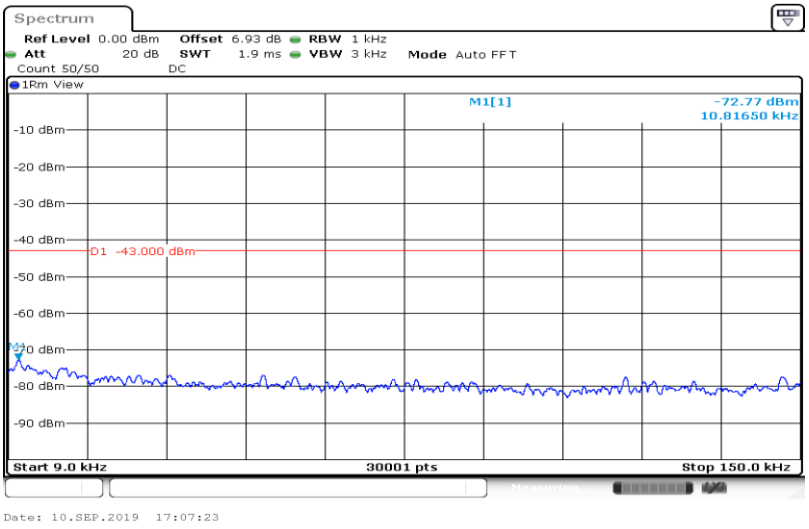
Band II-9538-3000~10000



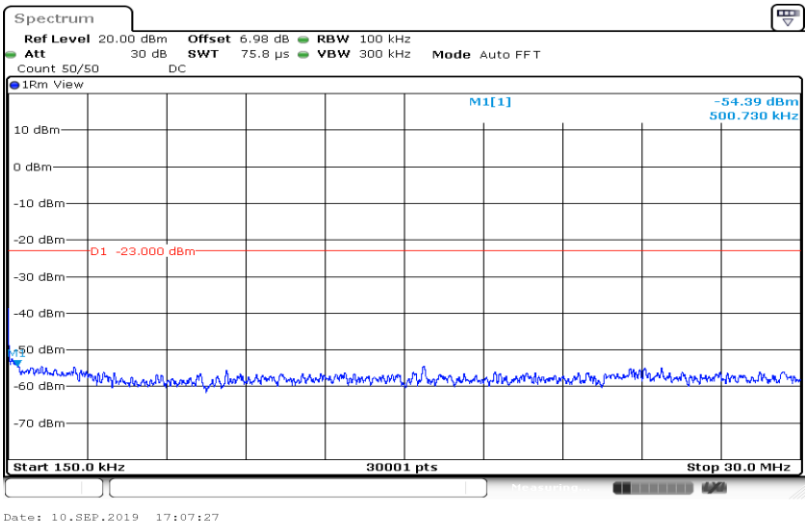
Band II-9538-10000~20000



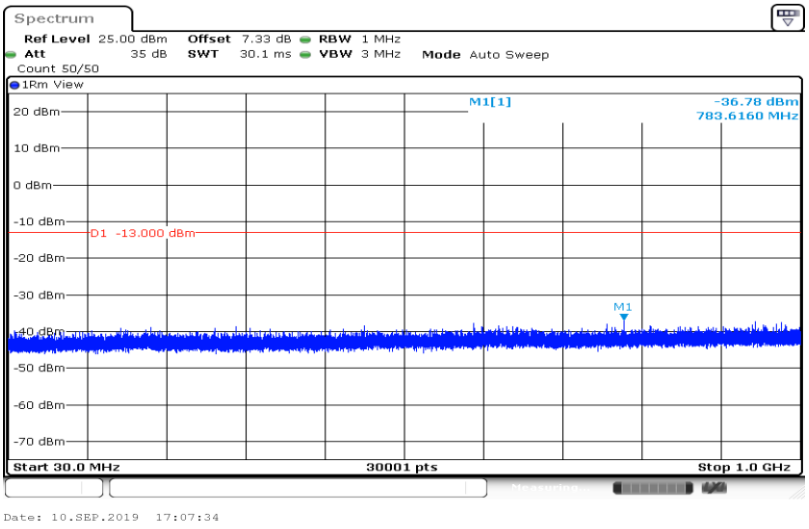
Band IV-1312-0.009~0.15



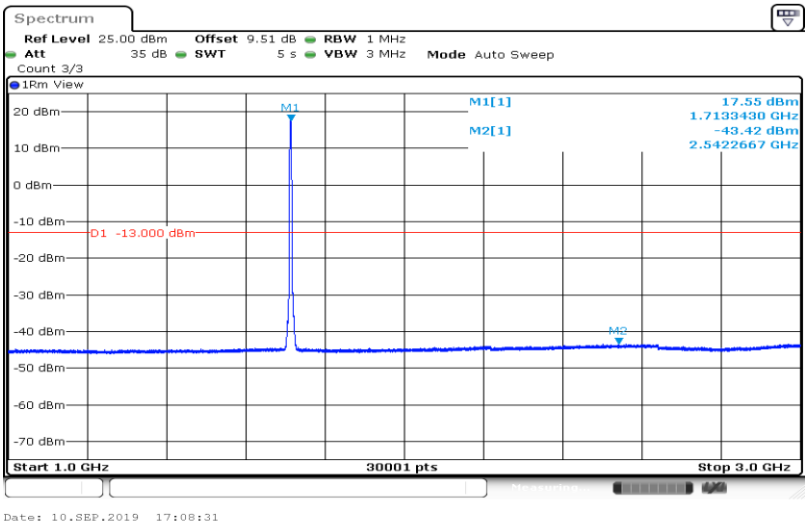
Band IV-1312-0.15~30



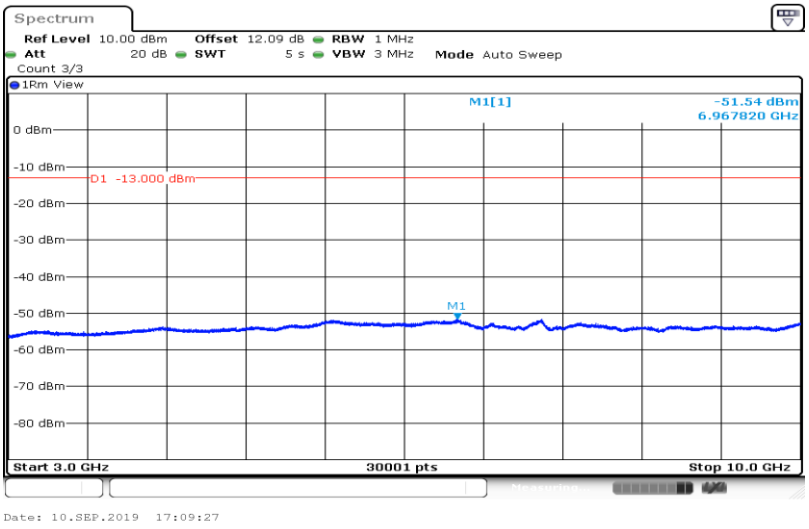
Band IV-1312-30~1000



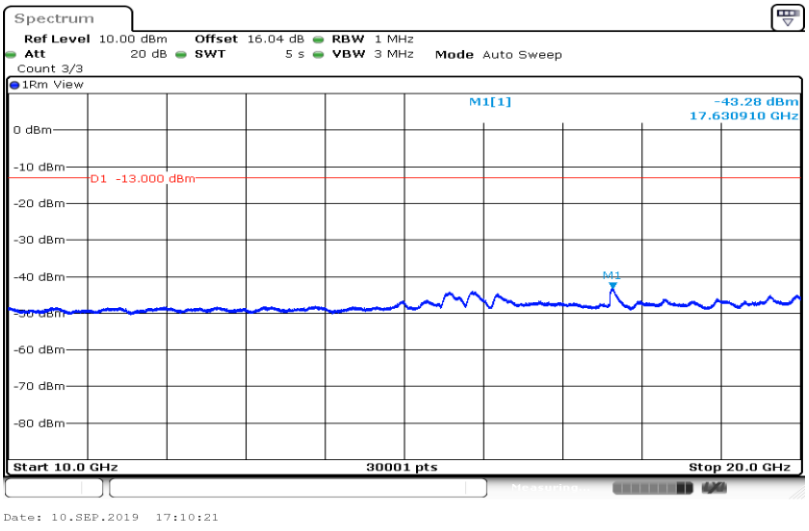
Band IV-1312-1000~3000



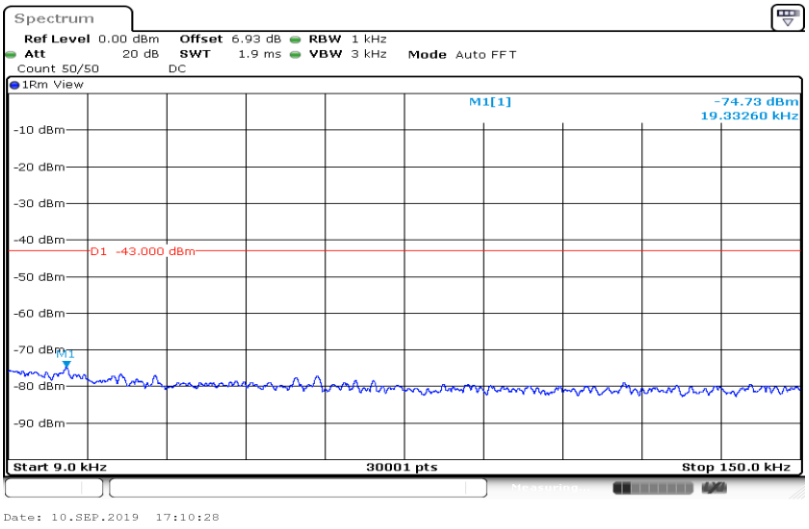
Band IV-1312-3000~10000



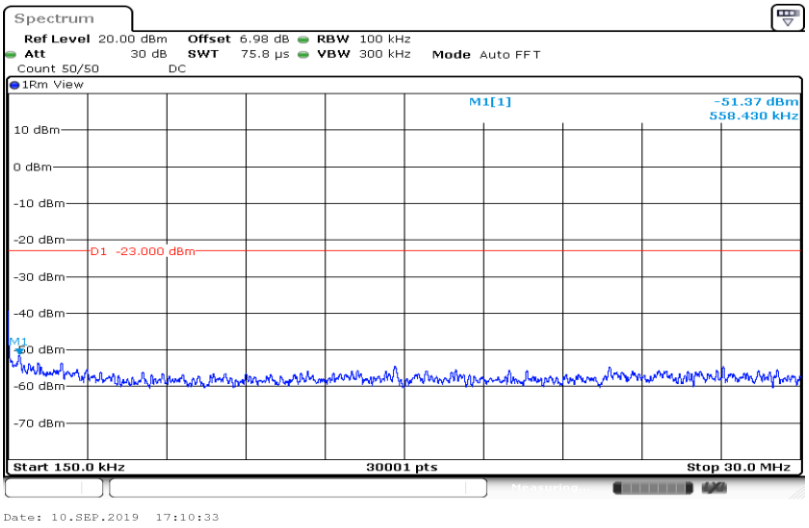
Band IV-1312-10000~20000



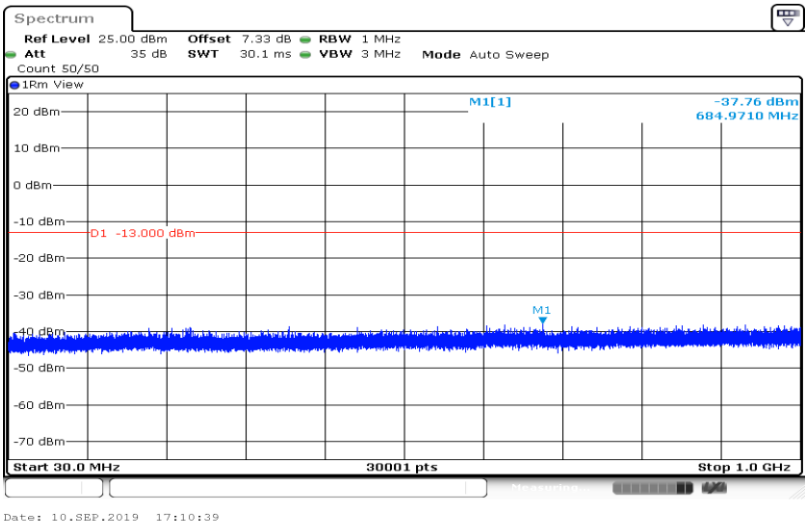
Band IV-1413-0.009~0.15



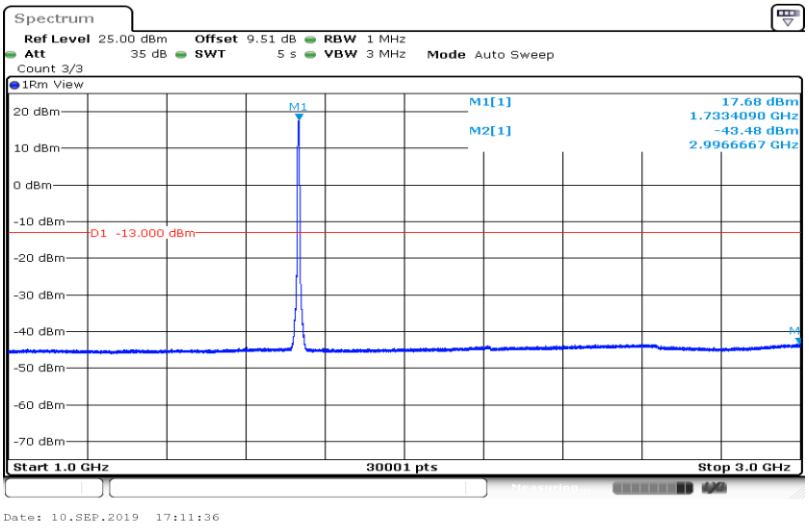
Band IV-1413-0.15~30



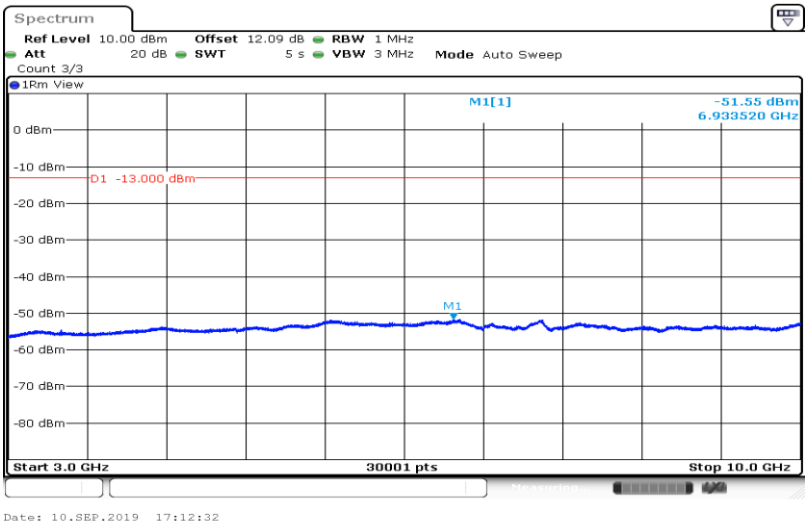
Band IV-1413-30~1000



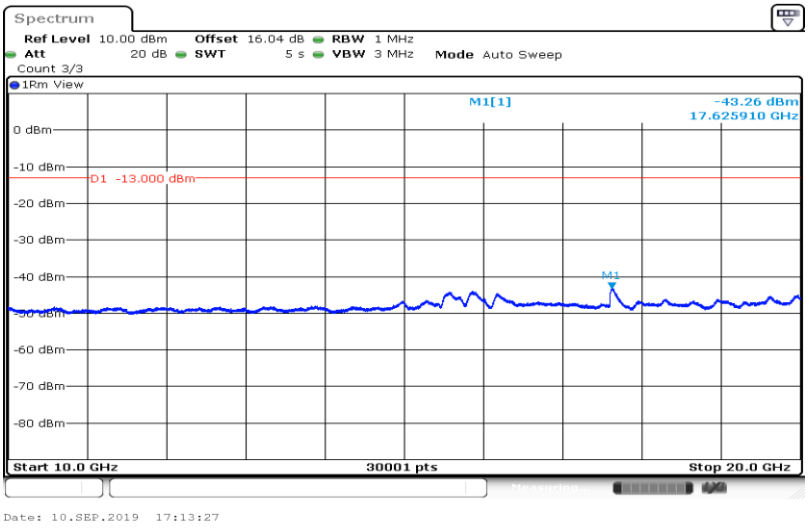
Band IV-1413-1000~3000



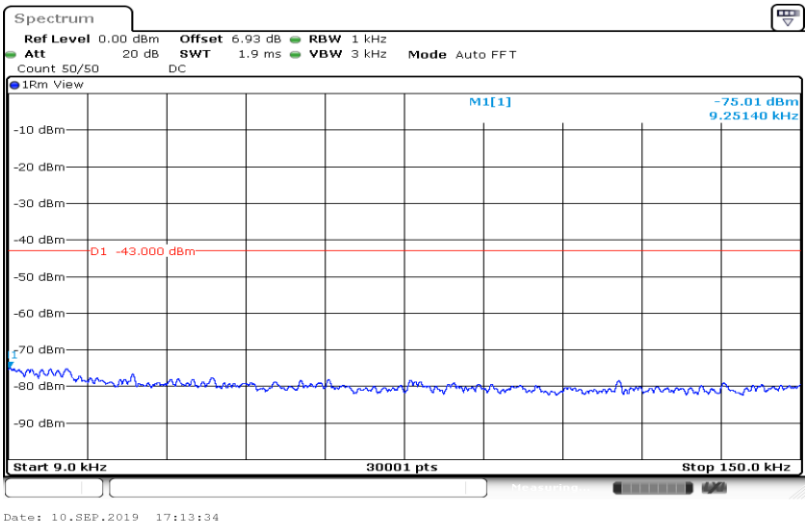
Band IV-1413-3000~10000



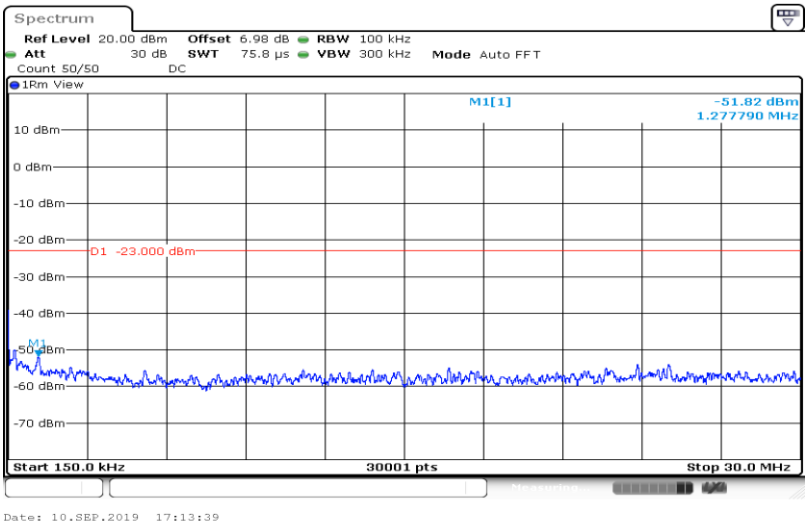
Band IV-1413-10000~20000



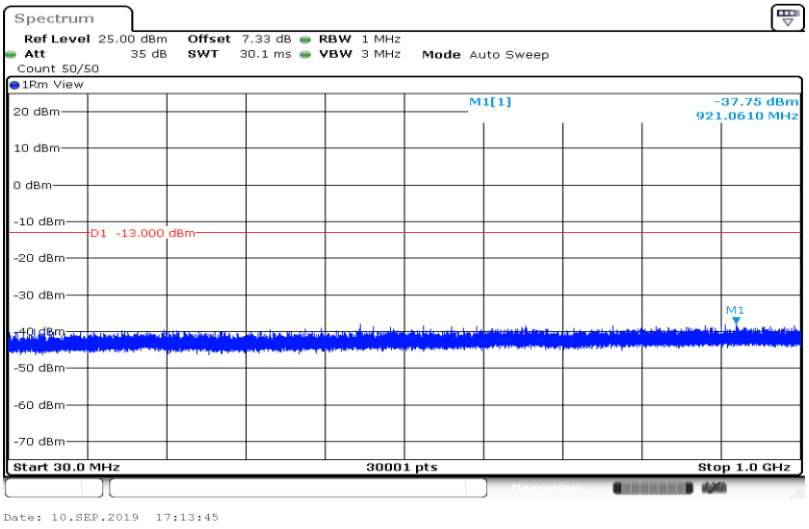
Band IV-1513-0.009~0.15



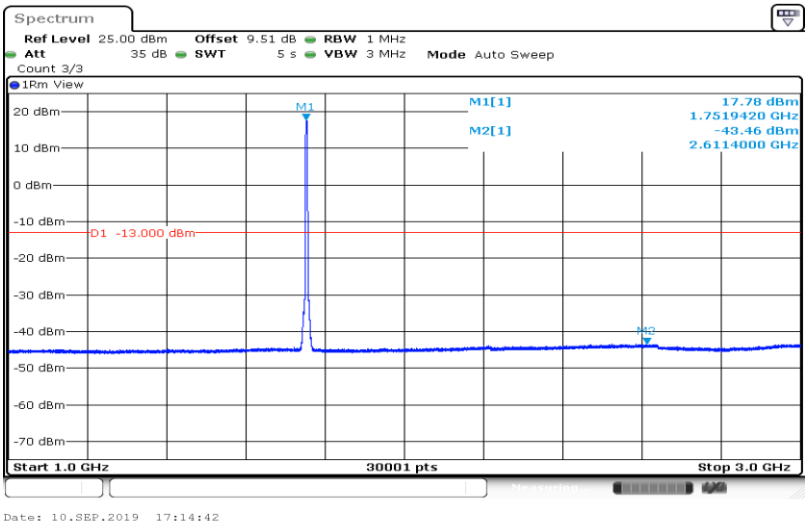
Band IV-1513-0.15~30



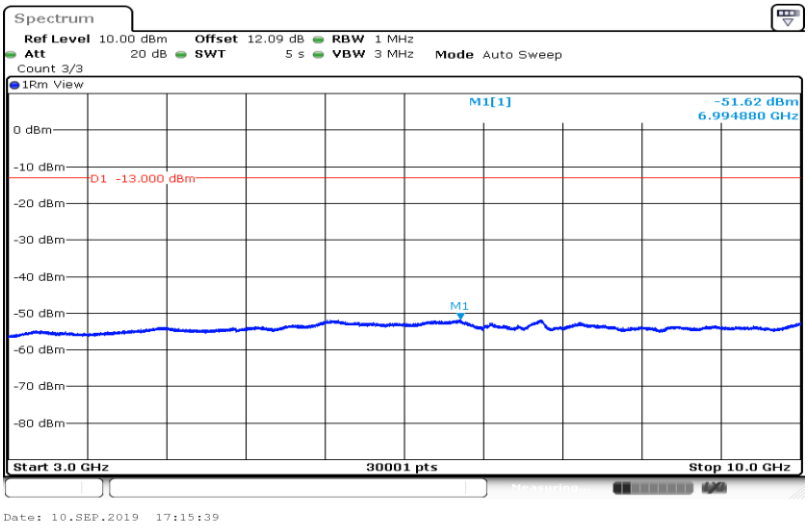
Band IV-1513-30~1000



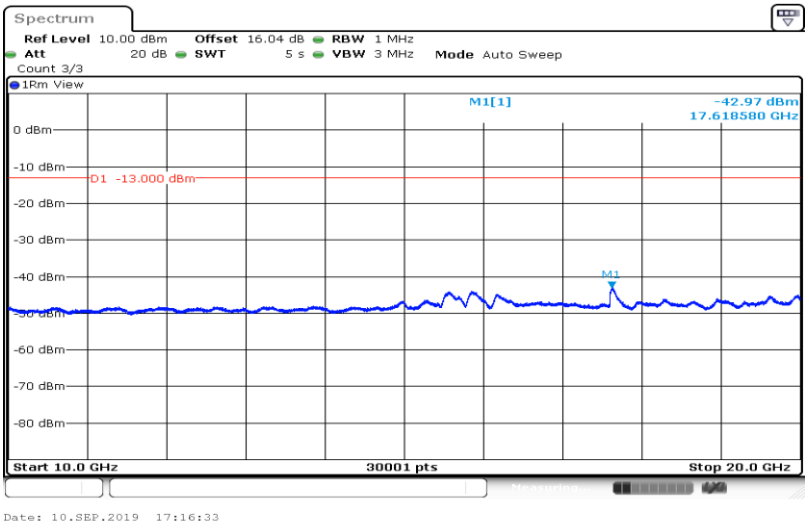
Band IV-1513-1000~3000



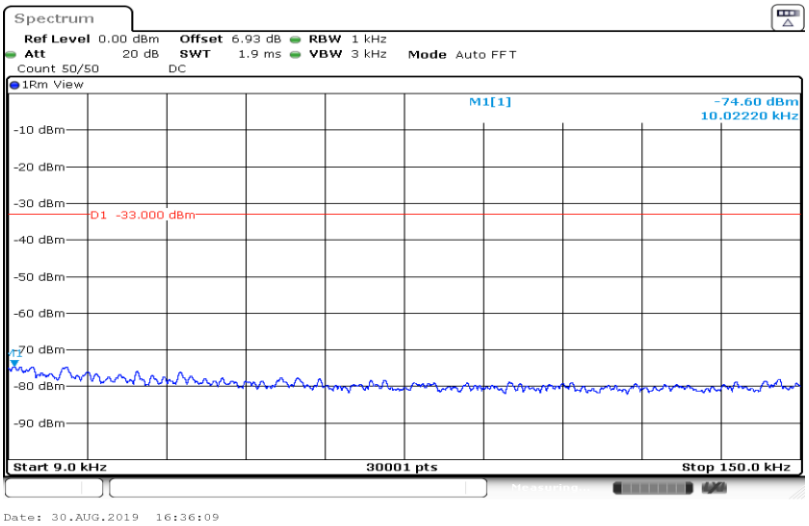
Band IV-1513-3000~10000



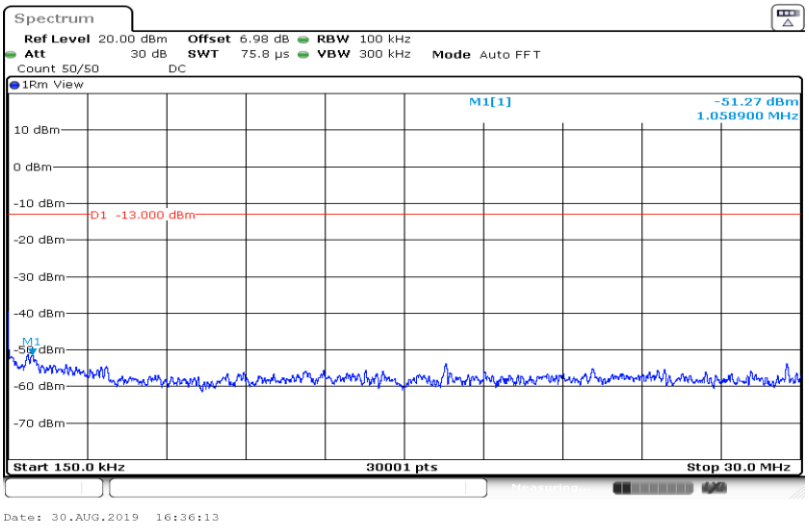
Band IV-1513-10000~20000



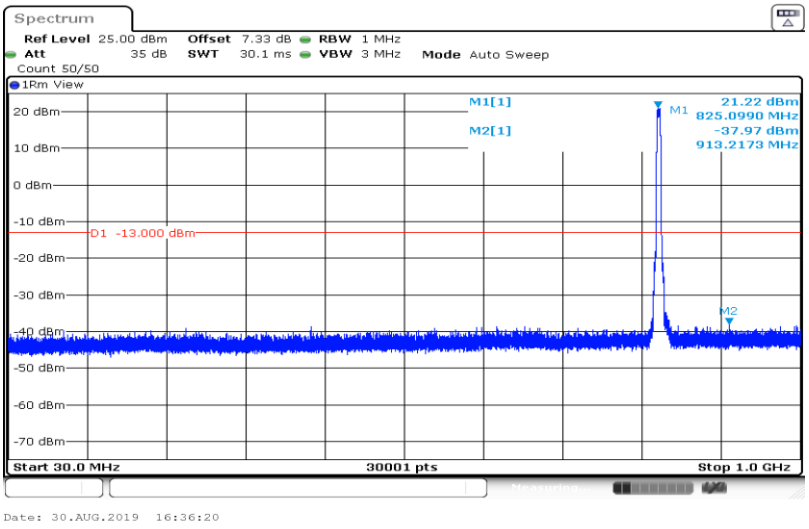
Band V-4132-0.009~0.15



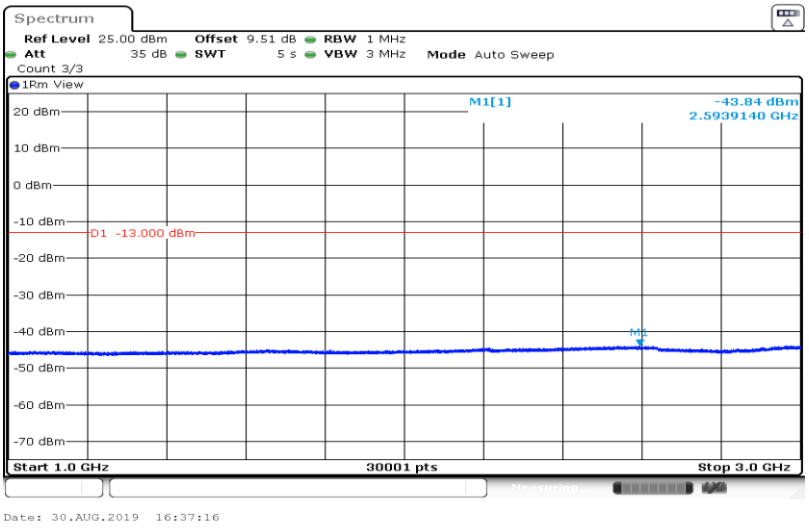
Band V-4132-0.15~30



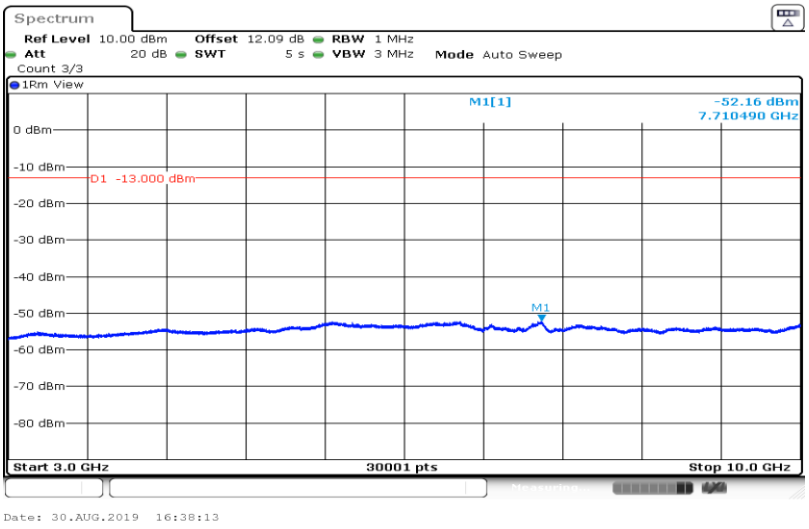
Band V-4132-30~1000



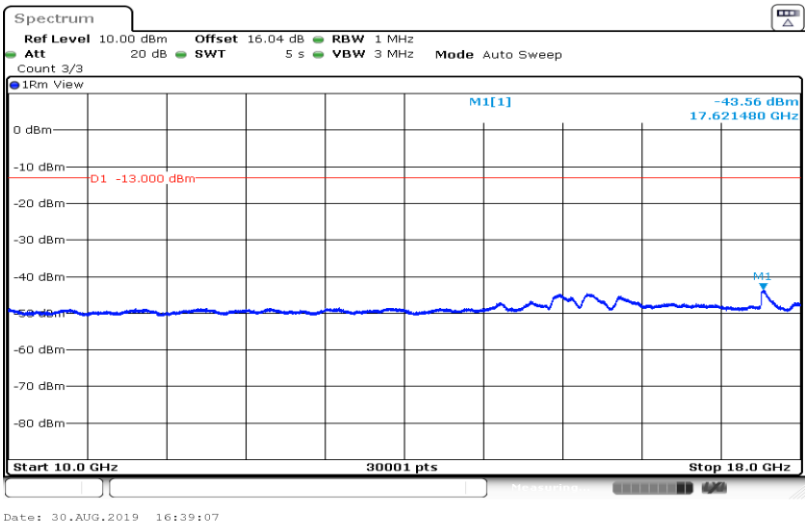
Band V-4132-1000~3000



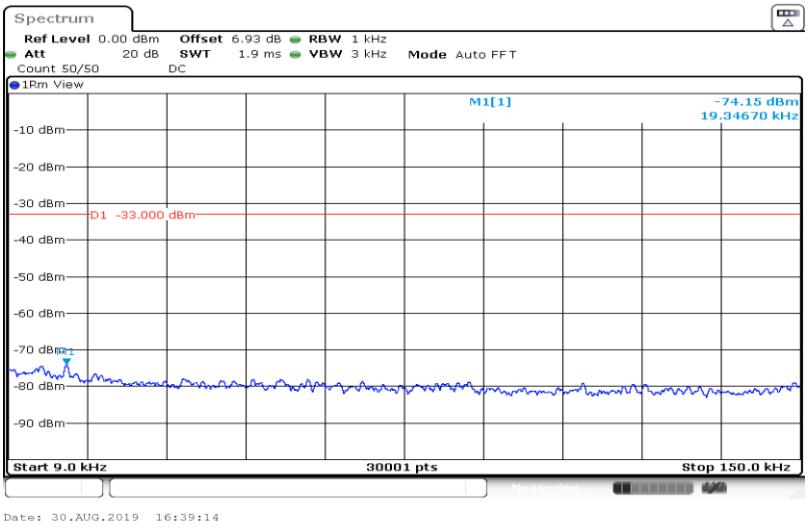
Band V-4132-3000~10000



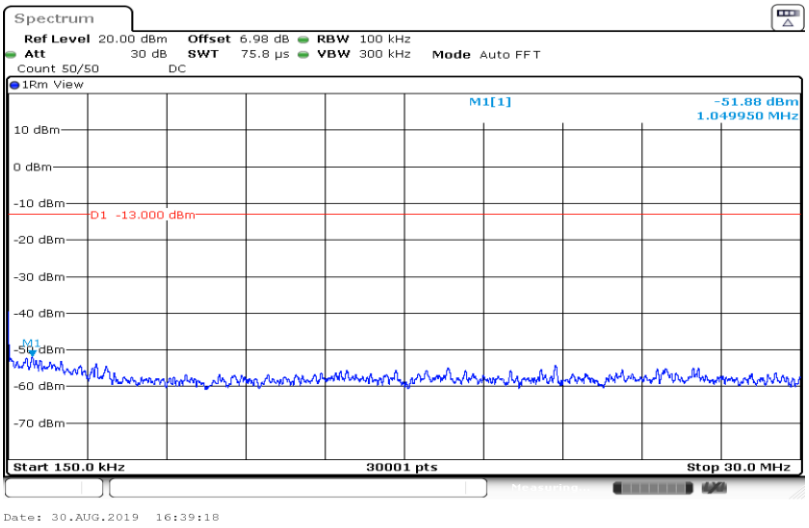
Band V-4132-10000~18000



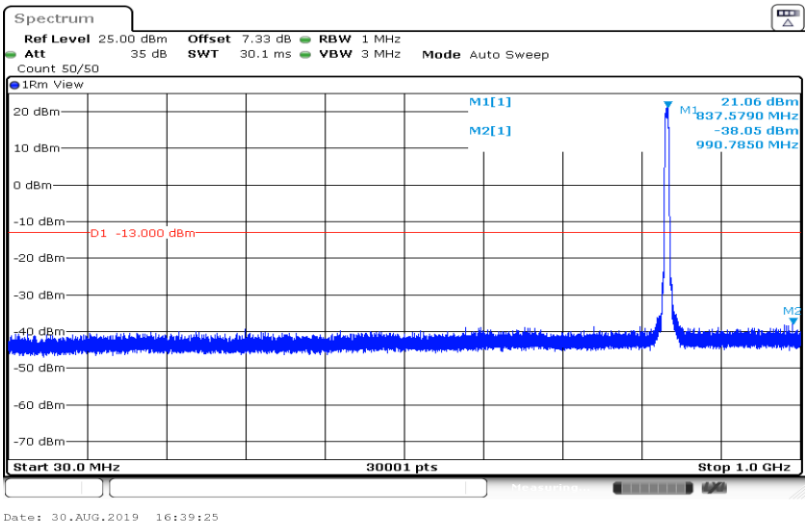
Band V-4182-0.009~0.15



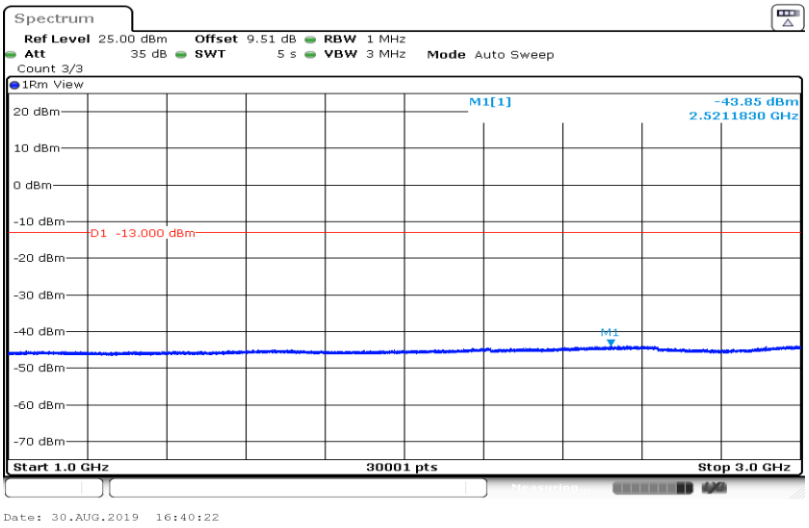
Band V-4182-0.15~30



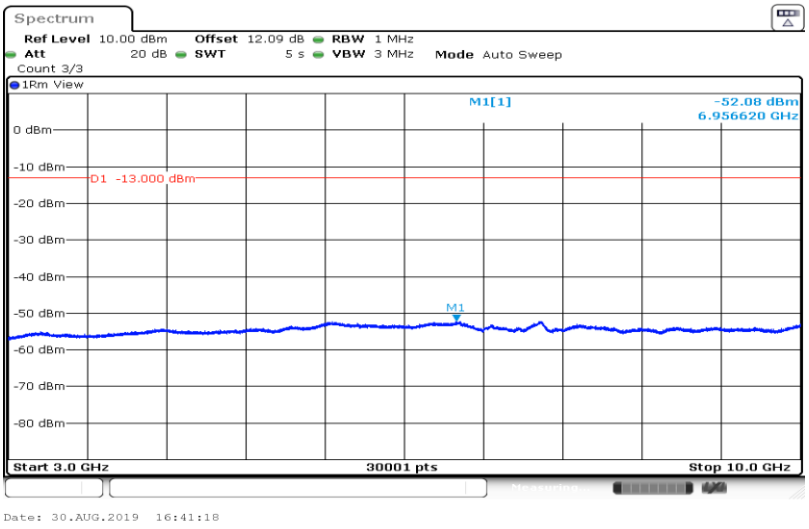
Band V-4182-30~1000



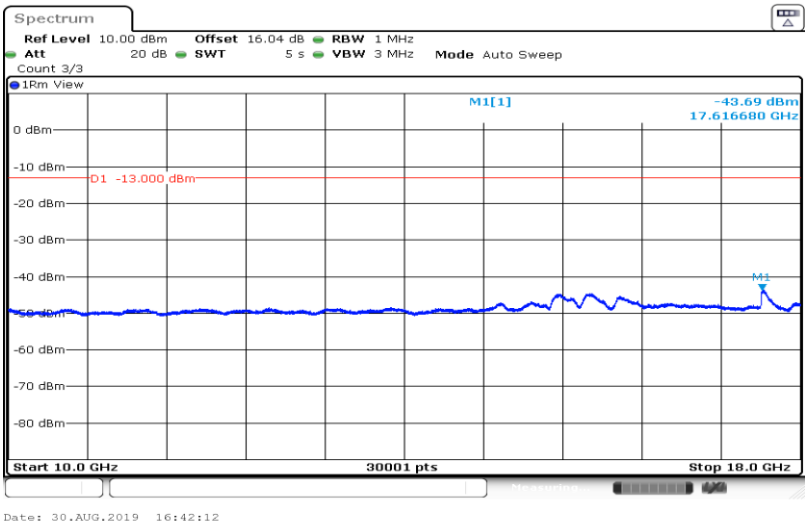
Band V-4182-1000~3000



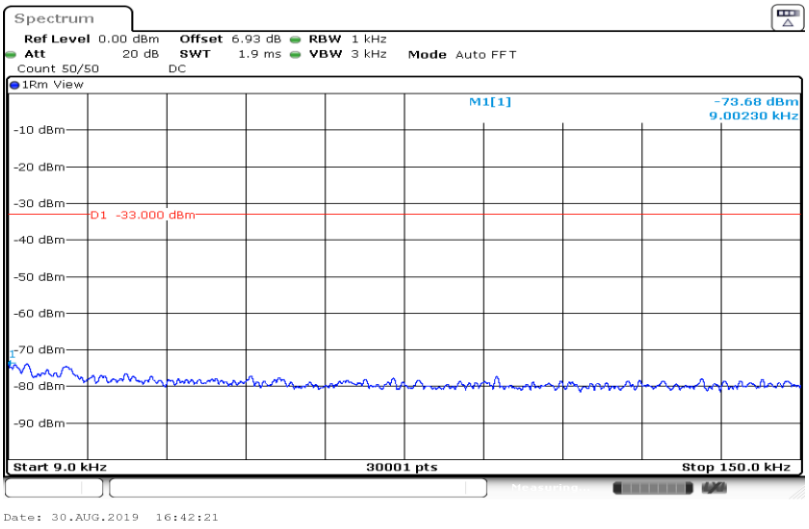
Band V-4182-3000~10000



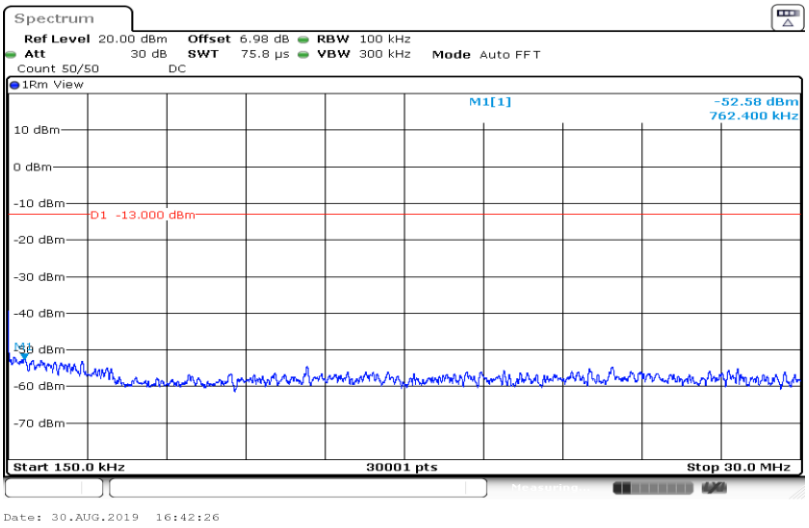
Band V-4182-10000~18000



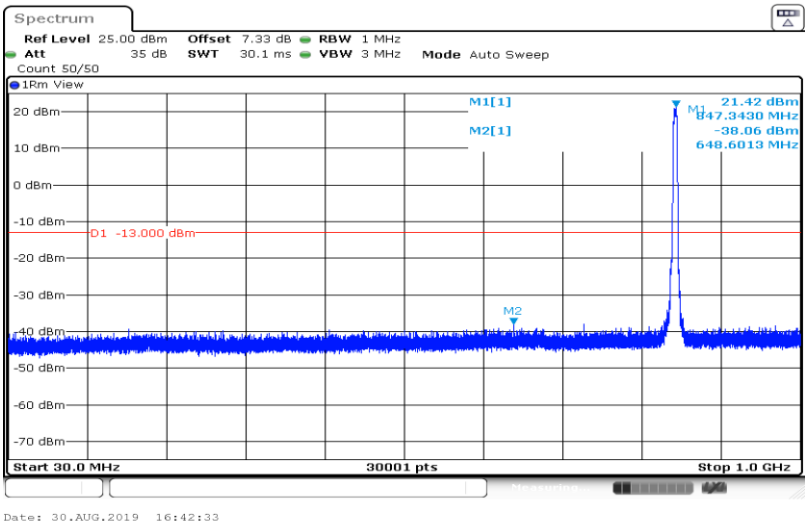
Band V-4233-0.009~0.15



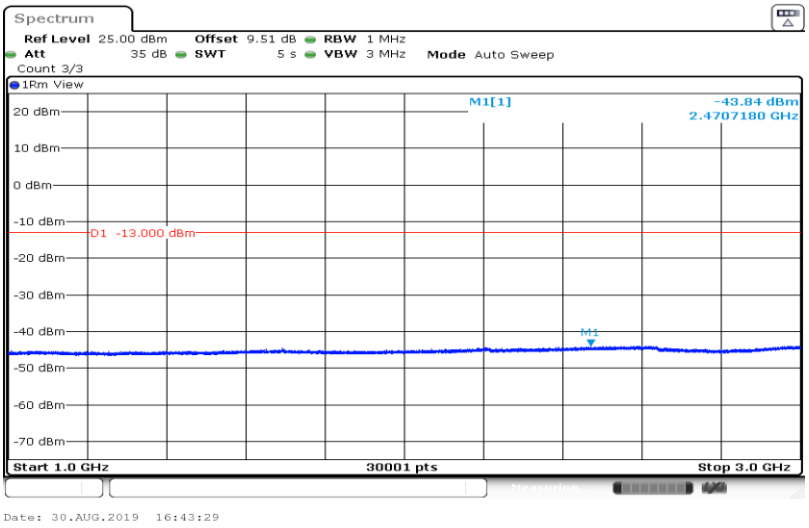
Band V-4233-0.15~30



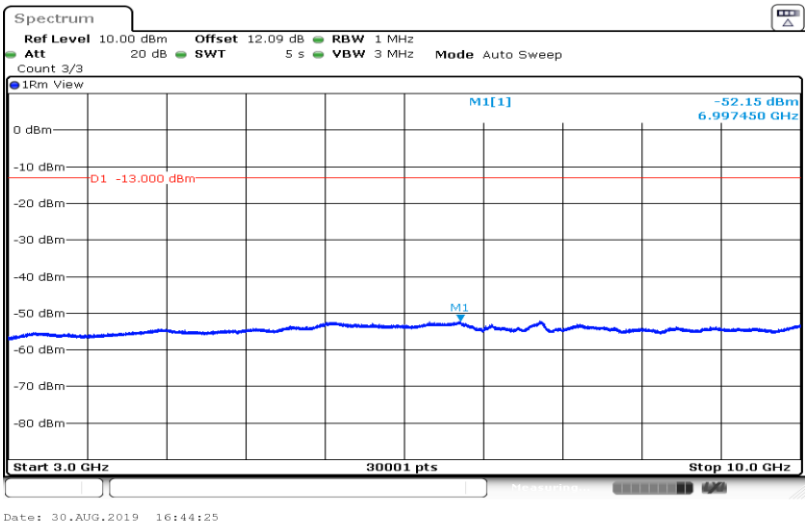
Band V-4233-30~1000



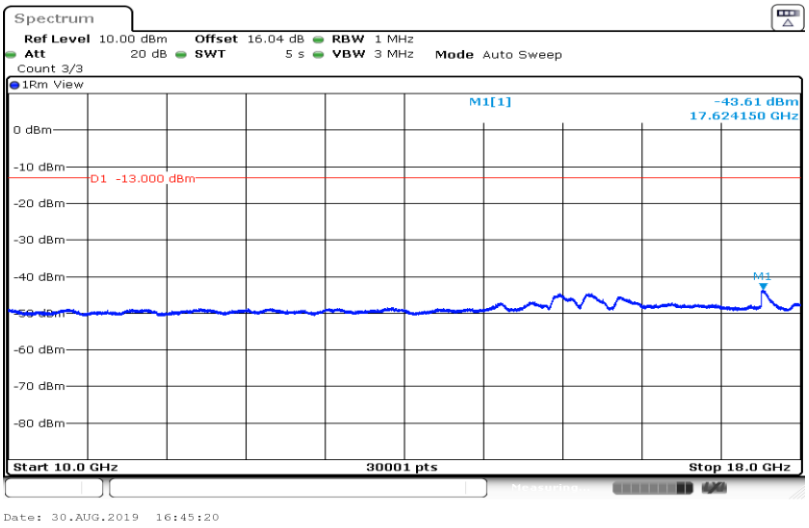
Band V-4233-1000~3000



Band V-4233-3000~10000



Band V-4233-10000~18000



Frequency Stability

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band II	9262	VL	TN	1.47	0.000795	2.5	PASS
Band II	9262	VN	TN	1.33	0.000718	2.5	PASS
Band II	9262	VH	TN	1.78	0.000961	2.5	PASS
Band II	9400	VL	TN	-1.01	-0.000536	2.5	PASS
Band II	9400	VN	TN	-0.61	-0.000323	2.5	PASS
Band II	9400	VH	TN	-0.41	-0.000221	2.5	PASS

Band II	9538	VL	TN	-4.96	-0.002602	2.5	PASS
Band II	9538	VN	TN	-5.78	-0.003030	2.5	PASS
Band II	9538	VH	TN	-4.34	-0.002276	2.5	PASS
Band IV	1312	VL	TN	16.93	0.009887	2.5	PASS
Band IV	1312	VN	TN	16.84	0.009837	2.5	PASS
Band IV	1312	VH	TN	16.04	0.009369	2.5	PASS
Band IV	1413	VL	TN	-0.73	-0.000421	2.5	PASS
Band IV	1413	VN	TN	-0.59	-0.000339	2.5	PASS
Band IV	1413	VH	TN	-1.09	-0.000632	2.5	PASS
Band IV	1513	VL	TN	-17.45	-0.009958	2.5	PASS
Band IV	1513	VN	TN	-17.64	-0.010064	2.5	PASS
Band IV	1513	VH	TN	-17.60	-0.010044	2.5	PASS
Band V	4132	VL	TN	0.44	0.000537	2.5	PASS
Band V	4132	VN	TN	1.39	0.001679	2.5	PASS
Band V	4132	VH	TN	0.14	0.000173	2.5	PASS
Band V	4182	VL	TN	0.19	0.000231	2.5	PASS
Band V	4182	VN	TN	-0.45	-0.000539	2.5	PASS
Band V	4182	VH	TN	0.04	0.000043	2.5	PASS
Band V	4233	VL	TN	-1.47	-0.001740	2.5	PASS
Band V	4233	VN	TN	-2.00	-0.002357	2.5	PASS
Band V	4233	VH	TN	-1.55	-0.001833	2.5	PASS

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band II	9262	VN	-30	2.76	0.001490	2.5	PASS
Band II	9262	VN	-20	2.88	0.001556	2.5	PASS
Band II	9262	VN	-10	1.85	0.001000	2.5	PASS
Band II	9262	VN	0	2.25	0.001212	2.5	PASS

Band II	9262	VN	10	3.37	0.001819	2.5	PASS
Band II	9262	VN	20	2.44	0.001317	2.5	PASS
Band II	9262	VN	30	2.24	0.001209	2.5	PASS
Band II	9262	VN	40	3.45	0.001865	2.5	PASS
Band II	9262	VN	50	2.96	0.001599	2.5	PASS
Band II	9400	VN	-30	-2.20	-0.001172	2.5	PASS
Band II	9400	VN	-20	-0.45	-0.000240	2.5	PASS
Band II	9400	VN	-10	0.62	0.000331	2.5	PASS
Band II	9400	VN	0	-0.45	-0.000240	2.5	PASS
Band II	9400	VN	10	-0.92	-0.000491	2.5	PASS
Band II	9400	VN	20	-1.14	-0.000605	2.5	PASS
Band II	9400	VN	30	-0.41	-0.000221	2.5	PASS
Band II	9400	VN	40	0.04	0.000023	2.5	PASS
Band II	9400	VN	50	-0.92	-0.000487	2.5	PASS
Band II	9538	VN	-30	-4.19	-0.002197	2.5	PASS
Band II	9538	VN	-20	-5.44	-0.002850	2.5	PASS
Band II	9538	VN	-10	-4.98	-0.002610	2.5	PASS
Band II	9538	VN	0	-5.32	-0.002790	2.5	PASS
Band II	9538	VN	10	-5.60	-0.002936	2.5	PASS
Band II	9538	VN	20	-4.80	-0.002516	2.5	PASS
Band II	9538	VN	30	-5.65	-0.002962	2.5	PASS
Band II	9538	VN	40	-5.64	-0.002958	2.5	PASS
Band II	9538	VN	50	-3.98	-0.002085	2.5	PASS
Band IV	1312	VN	-30	17.27	0.010087	2.5	PASS
Band IV	1312	VN	-20	17.24	0.010066	2.5	PASS
Band IV	1312	VN	-10	17.93	0.010472	2.5	PASS
Band IV	1312	VN	0	16.79	0.009803	2.5	PASS
Band IV	1312	VN	10	15.66	0.009147	2.5	PASS
Band IV	1312	VN	20	17.14	0.010012	2.5	PASS
Band IV	1312	VN	30	17.14	0.010008	2.5	PASS
Band IV	1312	VN	40	17.05	0.009958	2.5	PASS
Band IV	1312	VN	50	17.23	0.010062	2.5	PASS
Band IV	1413	VN	-30	-0.87	-0.000500	2.5	PASS
Band IV	1413	VN	-20	-1.51	-0.000871	2.5	PASS
Band IV	1413	VN	-10	-1.17	-0.000677	2.5	PASS

Band IV	1413	VN	0	-0.89	-0.000516	2.5	PASS
Band IV	1413	VN	10	0.24	0.000140	2.5	PASS
Band IV	1413	VN	20	-0.19	-0.000107	2.5	PASS
Band IV	1413	VN	30	-0.13	-0.000074	2.5	PASS
Band IV	1413	VN	40	-0.60	-0.000347	2.5	PASS
Band IV	1413	VN	50	-1.29	-0.000747	2.5	PASS
Band IV	1513	VN	-30	-17.21	-0.009819	2.5	PASS
Band IV	1513	VN	-20	-17.74	-0.010121	2.5	PASS
Band IV	1513	VN	-10	-17.81	-0.010162	2.5	PASS
Band IV	1513	VN	0	-17.76	-0.010133	2.5	PASS
Band IV	1513	VN	10	-18.32	-0.010452	2.5	PASS
Band IV	1513	VN	20	-18.47	-0.010537	2.5	PASS
Band IV	1513	VN	30	-17.04	-0.009721	2.5	PASS
Band IV	1513	VN	40	-17.01	-0.009705	2.5	PASS
Band IV	1513	VN	50	-18.37	-0.010480	2.5	PASS
Band V	4132	VN	-30	1.82	0.002198	2.5	PASS
Band V	4132	VN	-20	0.46	0.000554	2.5	PASS
Band V	4132	VN	-10	0.92	0.001108	2.5	PASS
Band V	4132	VN	0	0.84	0.001021	2.5	PASS
Band V	4132	VN	10	0.78	0.000943	2.5	PASS
Band V	4132	VN	20	0.70	0.000848	2.5	PASS
Band V	4132	VN	30	0.97	0.001177	2.5	PASS
Band V	4132	VN	40	1.71	0.002069	2.5	PASS
Band V	4132	VN	50	1.67	0.002025	2.5	PASS
Band V	4182	VN	-30	0.13	0.000154	2.5	PASS
Band V	4182	VN	-20	-0.29	-0.000342	2.5	PASS
Band V	4182	VN	-10	-0.27	-0.000325	2.5	PASS
Band V	4182	VN	0	-0.11	-0.000137	2.5	PASS
Band V	4182	VN	10	0.57	0.000676	2.5	PASS
Band V	4182	VN	20	-0.82	-0.000983	2.5	PASS
Band V	4182	VN	30	0.25	0.000299	2.5	PASS
Band V	4182	VN	40	-0.13	-0.000154	2.5	PASS
Band V	4182	VN	50	0.09	0.000103	2.5	PASS
Band V	4233	VN	-30	-1.57	-0.001850	2.5	PASS
Band V	4233	VN	-20	-1.29	-0.001521	2.5	PASS

Band V	4233	VN	-10	-1.81	-0.002137	2.5	PASS
Band V	4233	VN	0	-1.69	-0.001994	2.5	PASS
Band V	4233	VN	10	-1.74	-0.002053	2.5	PASS
Band V	4233	VN	20	-1.54	-0.001825	2.5	PASS
Band V	4233	VN	30	-2.02	-0.002391	2.5	PASS
Band V	4233	VN	40	-1.69	-0.001994	2.5	PASS
Band V	4233	VN	50	-1.73	-0.002045	2.5	PASS

Note:

1. Normal Voltage = 5V. ；Battery End Point (BEP) =4.75 V.；Maximum Voltage =5.25 V

2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

WCDMA Band V(RMC 12.2Kbps)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1652.8	-54.68	-13	-41.68	-61.64	-60.02	6.26	11.60	H
	2479.2	-55.39	-13	-42.39	-63.74	-59.40	8.49	12.50	H
	3305.6	-57.61	-13	-44.61	-65.64	-61.00	9.71	13.10	H
	1652.8	-55.61	-13	-42.61	-64.76	-60.95	6.26	11.6	V
	2479.2	-53.09	-13	-40.09	-61.94	-57.10	8.49	12.5	V
	3305.6	-58.64	-13	-45.64	-65.91	-62.03	9.71	13.1	V
Middle	1672.8	-55.78	-13	-42.78	-62.02	-61.82	6.56	12.60	H
	2509.2	-56.01	-13	-43.01	-64.60	-61.11	8	13.10	H
	3345.6	-56.87	-13	-43.87	-64.26	-58.60	9.57	11.30	H
	1672.8	-56.89	-13	-43.89	-63.44	-62.93	6.56	12.6	V
	2509.2	-54.05	-13	-41.05	-62.56	-59.15	8	13.1	V
	3345.6	-57.05	-13	-44.05	-64.54	-58.78	9.57	11.3	V
Highest	1693.2	-56.98	-13	-43.98	-63.79	-63.60	7.18	13.80	H
	2539.8	-57.64	-13	-44.64	-65.61	-62.48	9.91	14.75	H
	3386.4	-59.41	-13	-46.41	-65.19	-61.28	10.77	12.64	H
	1693.2	-57.16	-13	-44.16	-64.97	-63.78	7.18	13.8	V
	2539.8	-55.94	-13	-42.94	-63.94	-60.78	9.91	14.75	V
	3386.4	-58.61	-13	-45.61	-65.91	-60.48	10.77	12.64	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

WCDMA Band II(RMC 12.2Kbps)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3704.8	-56.79	-13	-43.79	-64.22	-61.88	7.41	12.50	H
	5557.2	-52.81	-13	-39.81	-66.34	-57.61	8.68	13.48	H
	7409.6	-49.84	-13	-36.84	-70.27	-51.94	9.79	11.89	H
	3704.8	-54.72	-13	-41.72	-63.15	-59.81	7.41	12.5	V
	5557.2	-51.67	-13	-38.67	-65.34	-56.47	8.68	13.48	V
	7409.6	-49.64	-13	-36.64	-69.79	-51.74	9.79	11.89	V
Middle	3760	-55.81	-13	-42.81	-64.40	-60.61	6.76	11.56	H
	5640	-51.94	-13	-38.94	-65.22	-56.80	7.98	12.84	H
	7520	-48.76	-13	-35.76	-69.37	-49.90	9.65	10.79	H
	3760	-53.94	-13	-40.94	-62.61	-58.74	6.76	11.56	V
	5640	-50.74	-13	-37.74	-64.25	-55.60	7.98	12.84	V
	7520	-48.04	-13	-35.04	-68.97	-49.18	9.65	10.79	V
Highest	3815.2	-53.89	-13	-40.89	-63.59	-59.85	6.62	12.58	H
	5722.8	-52.85	-13	-39.85	-64.38	-58.64	7.19	12.98	H
	7630.4	-47.81	-13	-34.81	-68.49	-50.58	8.51	11.28	H
	3815.2	-53.89	-13	-40.89	-61.51	-59.85	6.62	12.58	V
	5722.8	-52.85	-13	-39.85	-63.59	-58.64	7.19	12.98	V
	7630.4	-47.81	-13	-34.81	-67.84	-50.58	8.51	11.28	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

WCDMA Band IV(RMC 12.2Kbps)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3424.8	-54.51	-13	-41.51	-63.78	-59.47	7.42	12.38	H
	5137.2	-52.98	-13	-39.98	-64.91	-57.54	8.59	13.15	H
	6849.6	-47.39	-13	-34.39	-65.24	-48.99	9.81	11.41	H
	3424.8	-50.29	-13	-37.29	-58.71	-55.25	7.42	12.38	V
	5137.2	-50.79	-13	-37.79	-63.14	-55.35	8.59	13.15	V
	6849.6	-47.94	-13	-34.94	-66.97	-49.54	9.81	11.41	V
Middle	3465.2	-55.66	-13	-42.66	-64.35	-59.92	7.85	12.11	H
	5197.8	-53.13	-13	-40.13	-65.71	-58.59	8.18	13.64	H
	6930.4	-48.12	-13	-35.12	-66.32	-49.86	10.15	11.89	H
	3465.2	-51.34	-13	-38.34	-59.81	-55.60	7.85	12.11	V
	5197.8	-51.21	-13	-38.21	-64.04	-56.67	8.18	13.64	V
	6930.4	-48.50	-13	-35.50	-67.02	-50.24	10.15	11.89	V
Highest	3505.2	-56.16	-13	-43.16	-63.68	-61.05	6.69	11.58	H
	5257.8	-54.23	-13	-41.23	-64.24	-59.27	7.14	12.18	H
	7010.4	-49.39	-13	-36.39	-65.49	-51.99	8.79	11.39	H
	3505.2	-53.88	-13	-40.88	-58.84	-58.77	6.69	11.58	V
	5257.8	-52.71	-13	-39.71	-63.51	-57.75	7.14	12.18	V
	7010.4	-47.81	-13	-34.81	-66.84	-50.41	8.79	11.39	V

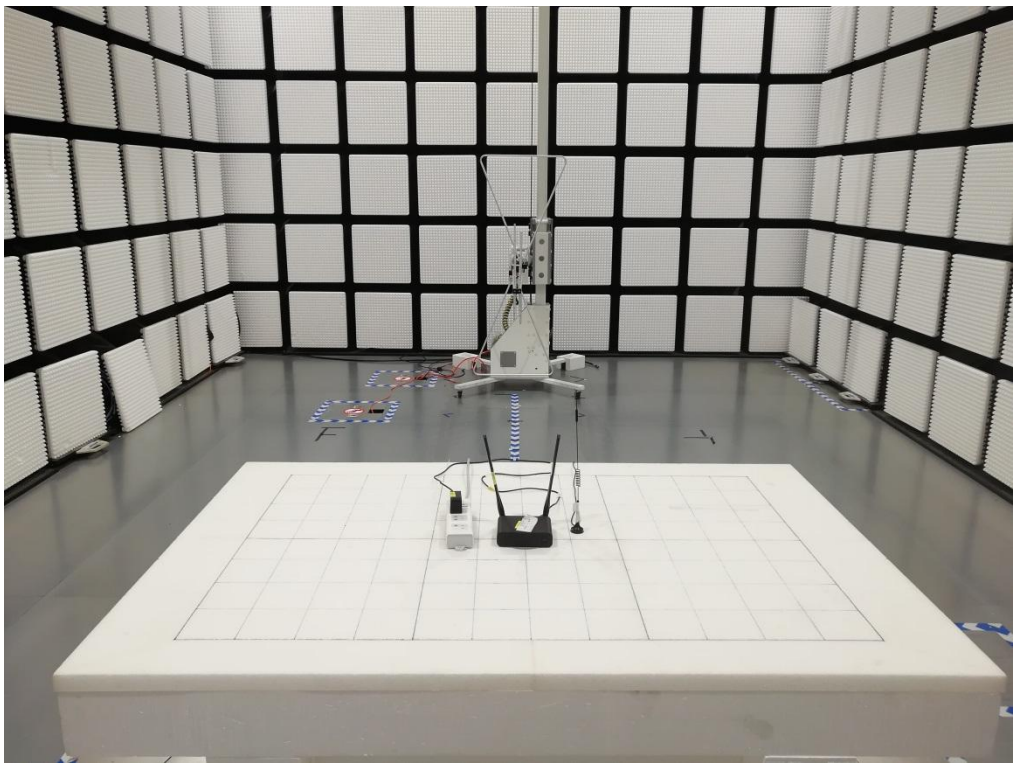
Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Appendix C. Test Setup Photographs

<Radiated Emission >

Y Plane

LF



HF

----------End of the report----------