FCC PART 90S

TEST REPORT

For

Comba Telecom Ltd.

611 East Wing, No. 8 Science Park West Avenue, Hk

FCC ID: PX8RH-7W22B-R

Report Type:	Product Type:
Original Report	700/800MHz Public Safety Distributed Antenna System

Report Number:	RSZ171031010-00F
Report Date:	2018-03-14
Reviewed By:	Rocky Kang RF Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

Note: This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP* or any agency of the Federal Government. * This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "*".

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Comba Telecom Ltd.'s* product, model number: *RH-7W22B-R (FCC ID: PX8RH-7W22B-R) in* this report is a *700/800MHz Public Safety Distributed Antenna System*, rated with input voltage: DC -48 V with RH-7W22B-R and AC 120V/60Hz with RH-7W22B-R-AC.

Note: *This series products model: RH-7W22B-R-AC and RH-7W22B-R are identical; they have the same or similar appearance, structure, PCB, Material and function to the testing products, Model RH-7W22B-R was selected for fully testing, the detailed information can be referred to the attached declaration which was stated and guaranteed by the applicant.*

Operating Frequency Range for RU:

Testing Signal Type	Downlink (RU)	Equipment Class
AWGN	862-869 MHz	B2I
GSM	862-869 MHz	B2I

** All measurement and test data in this report was gathered from production sample serial number: 17023761. (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2017-10-31.*

Objective

This test report is prepared on behalf of *Comba Telecom Ltd.* in accordance with Part 2, and Part 90-S of the Federal Communication Commissions rules.

Related Submittal(s)/Grant(s)

FCC Part 90 B9B submissions with FCC ID: PX8RH-7W22B-R.
FCC Part 90 B9B/B2I, Part of system submissions with FCC ID: PX8RH-7W22B-D.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2, Sub-part J as well as Part 90-S –Regulations Governing Licensing and Use of Frequencies in the 806-824, 851-869, 896-901, and 935-940 MHz Bands, and KDB 935210 D05 Indus Booster Basic Meas v01r02 Measurement Guidance for Industrial and Non-consumer Signal Booster, Repeater, and Amplifier Devices.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter	uncertainty
Occupied Channel Bandwidth	±5%
Input/output power and amplifier gain	±1.5dB
Unwanted Emission, conducted	±1.5dB
Radiated Emissions Below 1GHz	±4.70dB
Radiated Emissions Above 1GHz	±4.80dB
Internodulation	±1.5dB
Noise Figure Measurements	±1.5dB
Temperature	±1℃
Supply voltages	±0.4%

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 382179,the FCC Designation No. : CN5001.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a test mode which has been done in the factory.

EUT Exercise Software

No exercise software was used.

Special Accessories

No special accessory was used.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

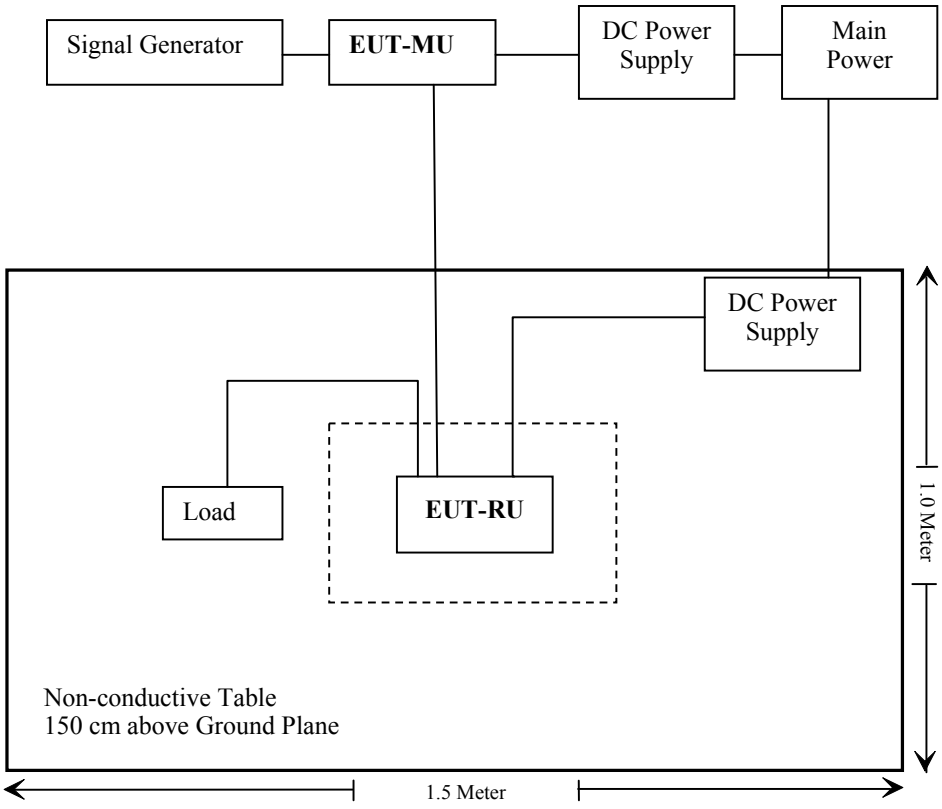
Manufacturer	Description	Model	Serial Number
GW instek	DC power supply	GPS-3030DD	EM832096
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh
Agilent	MXG Vector Signal Generator	N5182B	MY53051503
Comba	700/800MHz Public Safety Distributed Antenna System-MU	RH-7W22B-D	N/A
N/A	Load	N/A	N/A

External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded Un-Detachable DC Cable	1.5	DC Power Supply	EUT
Unshielded Detachable AC Cable	1.0	EUT	LISN
Fiber Optic Cable	2.0	MU	RU
Shielded Detachable RF Cable	1.2	RU	load

Block Diagram of Test Setup

For DC power supply:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§1.1307 (b)(1), §2.1091	Maximum Permissible Exposure (MPE)	Compliance
§90.219(e)(1)	Input/output power and amplifier gain	Compliance
§2.1049	Occupied Bandwidth	Compliance
§90.219(e)(3)	Intermodulation& Band Edge	Compliance
§90.219(e)(3)	Spurious emissions at antenna terminals	Compliance
§90.219(e)(3)	Radiated spurious emission	Compliance
§90.219 KDB 935210 D05	Out-of-band rejection	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Sunol Sciences	Horn Antenna	DRH-118	A052604	2017-12-22	2020-12-21
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2017-04-24	2018-04-24
Sunol Sciences	Bi-log Antenna	JB1	A040904-2	2017-12-17	2020-12-16
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2017-05-21	2018-05-21
HP	Amplifier	HP8447E	1937A01046	2017-11-19	2018-05-21
Anritsu	Signal Generator	68369B	004114	2017-12-05	2018-12-05
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2018-01-11	2019-01-11
COM POWER	Dipole Antenna	AD-100	041000	NCR	NCR
A.H. System	Horn Antenna	SAS-200/571	135	2015-08-18	2018-08-17
Ducommun technologies	RF Cable	UFA210A-1-4724-30050U	MFR64369 223410-001	2017-11-19	2018-05-21
Ducommun technologies	RF Cable	104PEA	218124002	Each time	
Ducommun technologies	RF Cable	RG-214	1	Each time	
Ducommun technologies	RF Cable	RG-214	2	Each time	
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200120	2017-12-05	2018-12-05
Long Wei	DC Power Supply	TPR-6420D	398363	NCR	NCR
R&S	Wideband Radio Communication tester	CMW500	1201.002K50-146520-wh	2017-04-24	2018-04-24
Agilent	MXG Vector Signal Generator	N5182B	MY53051503	2017-05-04	2018-05-04
Ducommun technologies	RF Cable	RG-214	3	Each time	
Ducommun technologies	RF Cable	104PEA	218124002	Each time	
WEINSCHEL	10dB Attenuator	5324	AU0709	2017-06-15	2018-06-15

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC§1.1307 (b)(1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

Result

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm2)
P = power input to the antenna (in appropriate units, e.g., mW).
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

For Occupational/controlled exposure:

Frequency (MHz)	Antenna Gain		Max Tune-up Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
	(dBi)	(numeric)	(dBm)	(mW)			
862-869	4	2.51	34	2512	20	1.26	2.87

Radiation Exposure Statement:

To comply with FCC RF exposure requirements, a minimum separation distance of 20cm is required between the antenna and the persons， and the available max antenna gain must not exceed 4 dBi

FCC §90.219(e)(1) - INPUT/OUTPUT POWER AND AMPLIFIER GAIN

Applicable Standard

According to FCC part 90.219(e)(1),The output power capability of a signal booster must be designed for deployments providing a radiated power not exceeding 5 Watts ERP for each retransmitted channel.

Test Procedure

Conducted RF Output Power:

According to KDB 935210 D05 v01r02 section 3.5.2:

a) Connect a signal generator to the input of the EUT.
b) Configure to generate the AWGN (broadband) test signal.
c) The frequency of the signal generator shall be set to the frequency f0 as determined from 3.3.
d) Connect a spectrum analyzer or power meter to the output of the EUT using appropriate attenuation as necessary.
e) Set the signal generator output power to a level that produces an EUT output level that is just below the AGC threshold (see 3.2), but not more than 0.5 dB below.
f) Measure and record the output power of the EUT; use 3.5.3 or 3.5.4 for power measurement.
g) Remove the EUT from the measurement setup. Using the same signal generator settings, repeat the power measurement at the signal generator port, which was used as the input signal to the EUT, and record as the input power. EUT gain may be calculated as described in 3.5.5.
h) Repeat steps f) and g) with input signal amplitude set to 3 dB above the AGC threshold level.
i) Repeat steps e) to h) with the narrowband test signal.
j) Repeat steps e) to i) for all frequency bands authorized for use by the EUT.

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Tracy Hu on 2018-03-02.

Test Mode: Transmitting

Test Result: Compliance. Please refer to following table.

Band (MHz)	Signal Type	Signal Level	Input Power (dBm)	Conducted Output Power (dBm)	Max Gain (dBi)	Max Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Results
820.5	GSM	Pre-AGC	-62	33.13	95.13	4	34.98	37	Pass
		3dB above AGC	-59	33.13	92.13	4	34.98	37	Pass
	AWGN	Pre-AGC	-63	32.14	95.14	4	33.99	37	Pass
		3dB above AGC	-60	32.32	92.32	4	34.17	37	Pass

Note: Max Gain= Conducted output power – Input power
ERP= Measured Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15 (dB)
The limit is 5Watts (37dBm)

FCC §2.1049 –OCCUPIED BANDWIDTH

Applicable Standard

FCC §2.1049.

Test Procedure

Test Method: KDB 935210 D05 Indus Booster Basic Meas v01r02 section 3.4
A 26 dB bandwidth measurement shall be performed on the input signal and the output signal; alternatively, the 99% OBW can be measured and used. See KDB Publication 971168 [R8] for more information on measuring OBW

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	56 %
ATM Pressure:	101.5 kPa

The testing was performed by Tracy Hu on 2018-02-28.

Test Mode: Transmitting

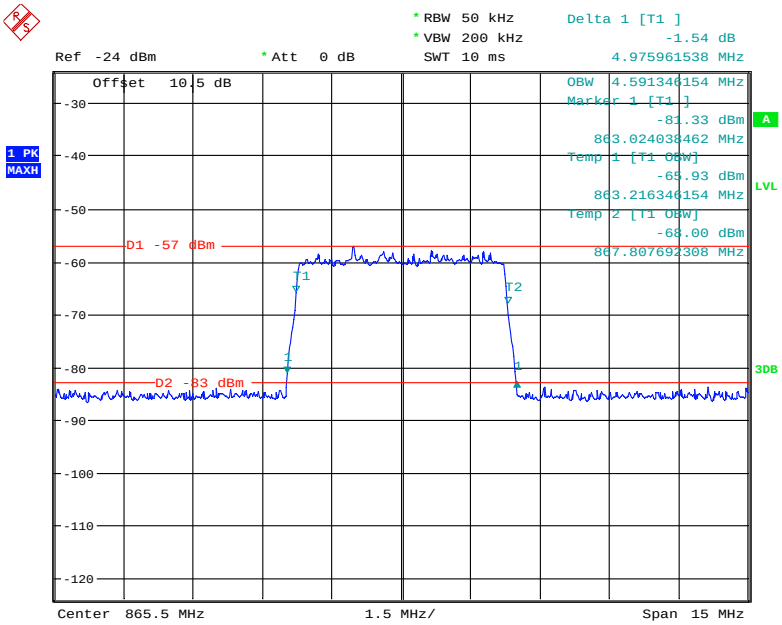
Please refer to the following tables and plots.

Signal Type	Frequency (MHz)	Input Signal Level	Input		Output	
			99% OBW (MHz)	26dB Band width (MHz)	99% OBW (MHz)	26dB Band width (MHz)
GSM	865.5	AGC	0.245	0.321	0.255	0.322
		AGC+3 dB	0.245	0.321	0.250	0.322
AWGN		AGC	4.519	4.920	4.591	4.976
		AGC+3 dB	4.487	4.920	4.519	4.952

Note: Input signal level refer to the result of item: Input/output power and amplifier gain

AWGN:

Frequency: 865.5 MHz, 99% Occupied & 26 dB Bandwidth AGC Input



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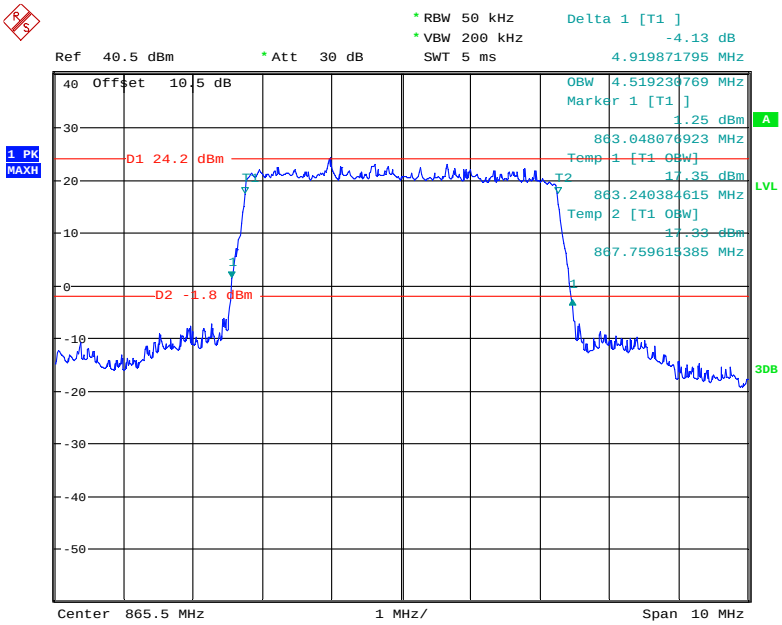
Frequency: 865.5 MHz, 99% Occupied & 26 dB Bandwidth AGC Output



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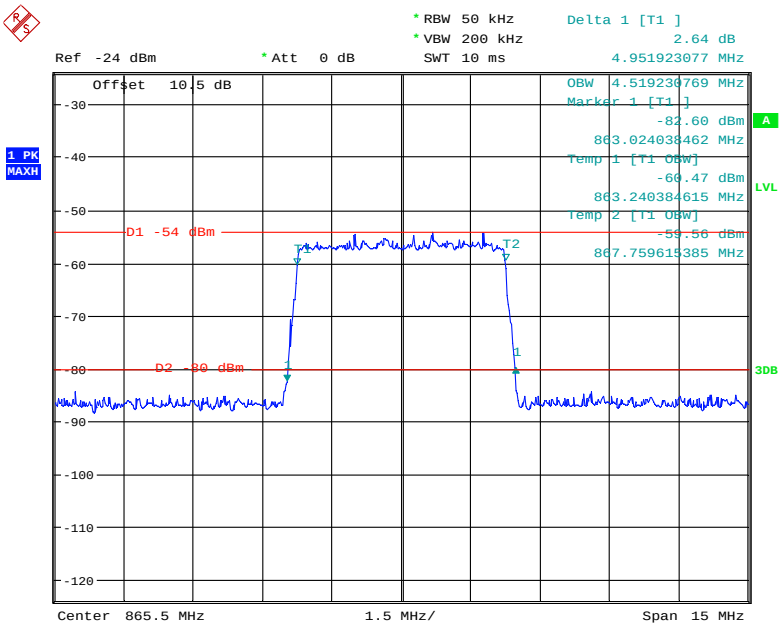
Frequency: 865.5 MHz, 99% Occupied & 26 dB Bandwidth AGC+3 Input



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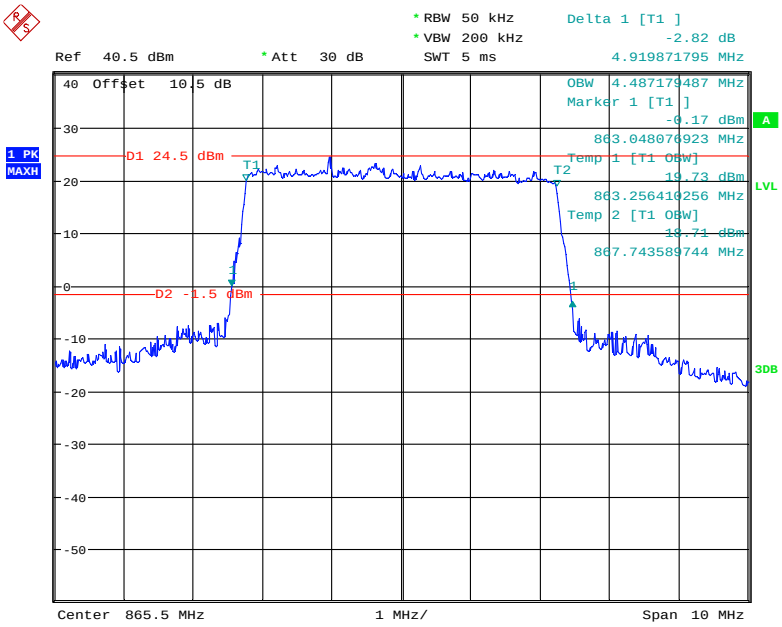
Frequency: 865.5 MHz, 99% Occupied & 26 dB Bandwidth AGC+3 Output



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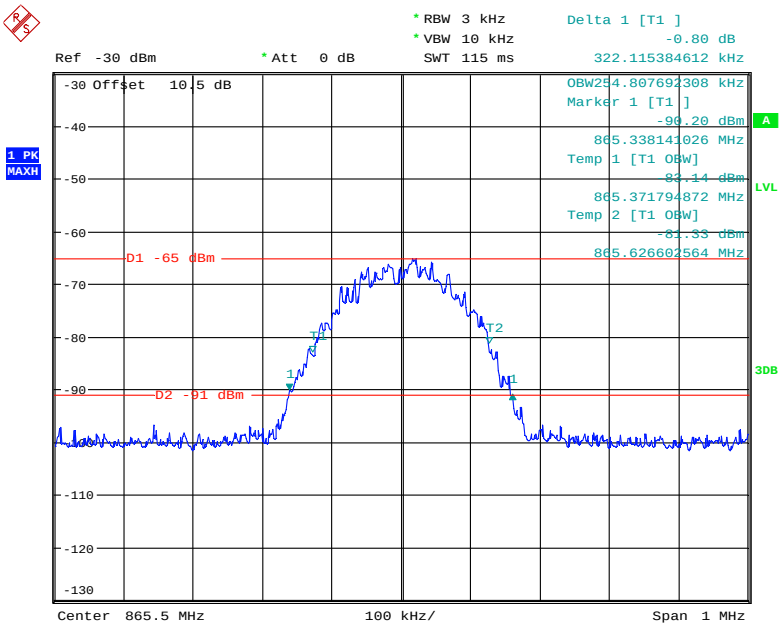
GSM:

Frequency: 865.5 MHz, 99% Occupied & 26 dB Bandwidth AGC Input



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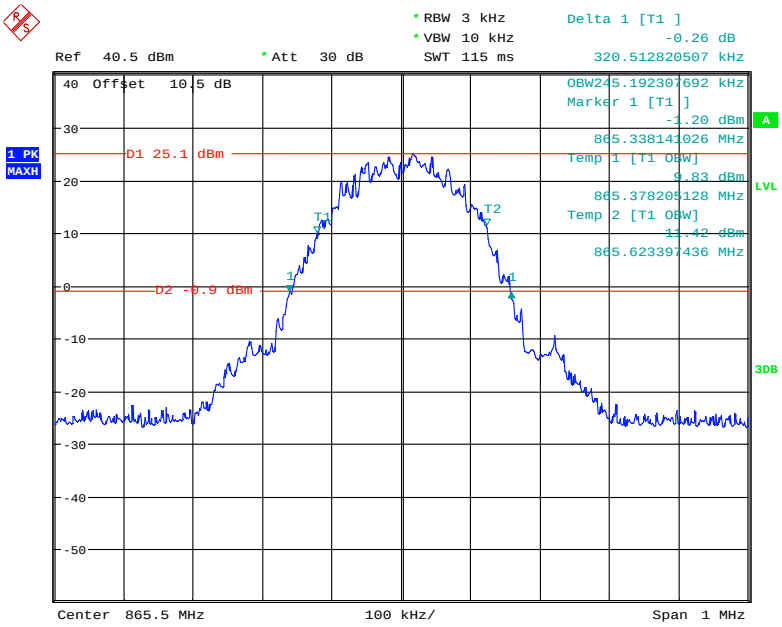
Frequency: 865.5 MHz, 99% Occupied & 26 dB Bandwidth AGC Output



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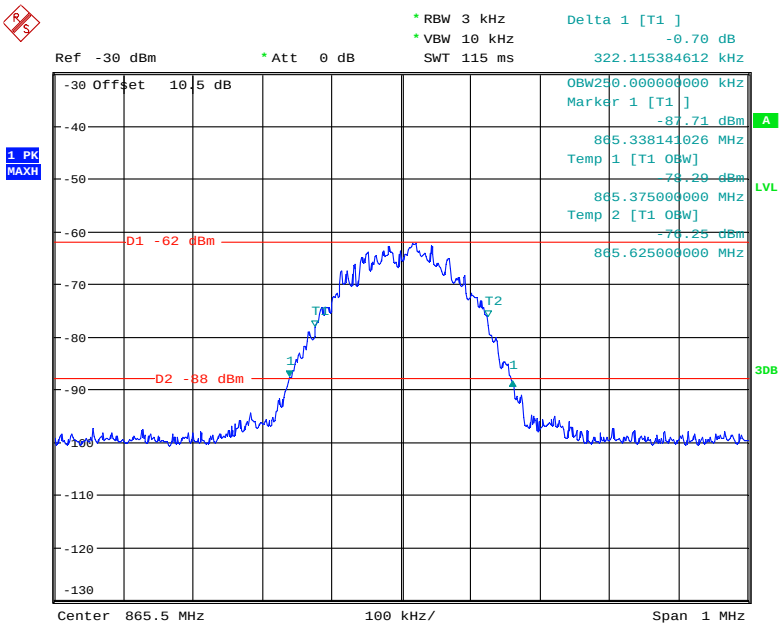
Frequency: 865.5 MHz, 99% Occupied & 26 dB Bandwidth AGC+3 Input



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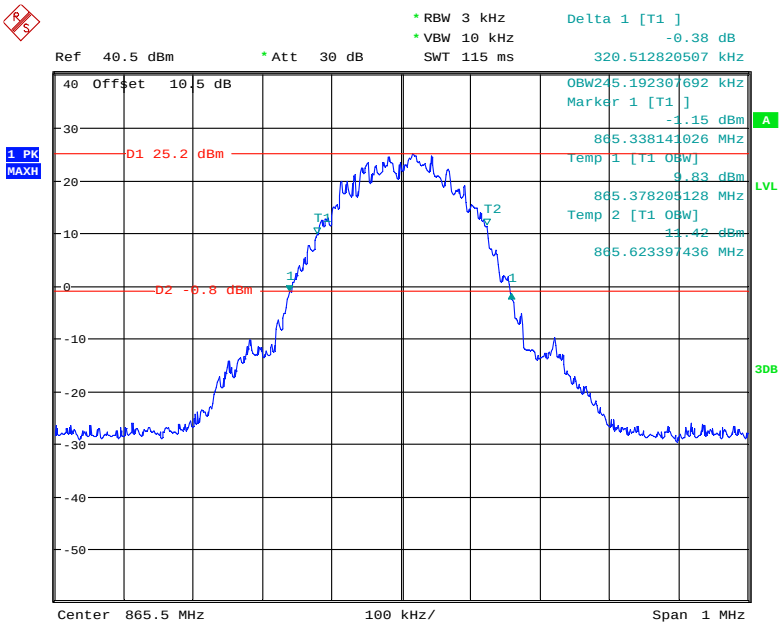
Frequency: 865.5 MHz, 99% Occupied & 26 dB Bandwidth AGC+3 Output



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FCC §90. 219(e)(3) - RADIATED SPURIOUS EMISSIONS

Applicable Standard

According to FCC §90.219(e)(3), Spurious emissions from a signal booster must not exceed −13 dBm within any 100 kHz measurement bandwidth.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT .The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB =10 1g (TXpwr in Watts/0.001)-the absolute level

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Tracy Hu on 2018-01-18.

Test Mode: Transmitting(pre-scan the low, middle and high channel, the worst case was middle channel)

Model: RH-7W22B-R

30MHz - 10GHz:

Frequency (MHz)	Receiver Reading (dBμV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
865.5 MHz										
218.25	35.34	88	2.0	H	-61.7	0.30	0	-62.00	-13	49.00
218.25	36.90	331	1.1	V	-60.1	0.30	0	-60.40	-13	47.40
1731.00	47.98	25	1.4	H	-59.5	1.30	8.90	-51.90	-13	38.90
1731.00	48.32	172	1.9	V	-58.6	1.30	8.90	-51.00	-13	38.00

Model: RH-7W22B-R-AC

30MHz - 10GHz:

Frequency (MHz)	Receiver Reading (dBμV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
865.5 MHz										
218.25	36.62	178	2.3	H	-60.4	0.30	0	-60.70	-13	47.70
218.25	35.48	252	2.1	V	-61.5	0.30	0	-61.80	-13	48.80
1731.00	46.47	304	2.3	H	-61.0	1.30	8.90	-53.40	-13	40.40
1731.00	46.83	305	1.1	V	-60.0	1.30	8.90	-52.40	-13	39.40

Note:
Absolute Level = Substituted Level - Cable loss + Antenna Gain
Margin = Limit- Absolute Level

FCC §90. 219(e)(3) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

According to FCC §90.219(e)(3), Spurious emissions from a signal booster must not exceed −13 dBm within any 100 kHz measurement bandwidth.

Test Procedure

Test Method: KDB 935210 D05 Indus Booster Basic Meas v01r02 section 3.6.3

a) Connect a signal generator to the input of the EUT.
b) Set the signal generator to produce the broadband test signal as previously described (i.e., 4.1 MHz OBW AWGN).
c) Set the center frequency of the test signal to the lowest available channel within the frequency band or block.
d) Set the EUT input power to a level that is just below the AGC threshold (see 3.2), but not more than 0.5 dB below.
e) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation as necessary.
f) Set the RBW = reference bandwidth in the applicable rule section for the supported frequency band of operation (e.g., reference bandwidth is typically 100 kHz or 1 MHz).
g) Set the VBW $\geqslant$ 3 $\times$ RBW.
h) Set the Sweep time = auto-couple.
i) Set the spectrum analyzer start frequency to the lowest RF signal generated in the equipment, without going below 9 kHz, and the stop frequency to the lower band/block edge frequency minus 100 kHz or 1 MHz, as specified in the applicable rule part.
The number of measurement points in each sweep must be $\geqslant$ (2 $\times$ span/RBW), which may require that the measurement range defined by the start and stop frequencies be subdivided, depending on the available number of measurement points provided by the spectrum analyzer. 4
j) Select the power averaging (rms) detector function.
k) Trace average at least 10 traces in power averaging (rms) mode.
l) Use the peak marker function to identify the highest amplitude level over each measured frequency range. Record the frequency and amplitude and capture a plot for inclusion in the test report.
m) Reset the spectrum analyzer start frequency to the upper band/block edge frequency plus 100 kHz or 1 MHz, as specified in the applicable rule part, and the spectrum analyzer stop frequency to 10 times the highest frequency of the fundamental emission (see Section 2.1057). The number of measurement points in each sweep must be $\geqslant$ (2 $\times$ span/RBW), which may require that the measurement range defined by the start and stop frequencies be subdivided, depending on the available number of measurement points provided by the spectrum analyzer.
n) Trace average at least 10 traces in power averaging (rms) mode.
o) Use the peak marker function to identify the highest amplitude level over each of the measured frequency ranges. Record the frequency and amplitude and capture a plot for inclusion in the test report; also provide tabular data, if required.
p) Repeat steps i) to o) with the input test signals firstly tuned to a middle band/block frequency/channel, and then tuned to a high band/block frequency/channel.
q) Repeat steps b) to p) with the narrowband test signal.
r) Repeat steps b) to q) for all authorized frequency bands/blocks used by the EUT.

Test Data

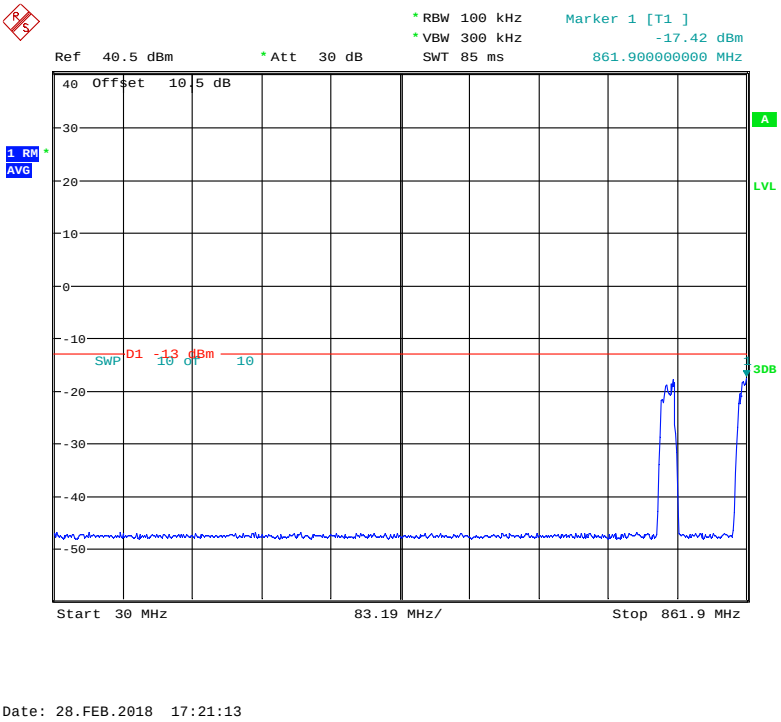
Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	55 %
ATM Pressure:	101.5 kPa

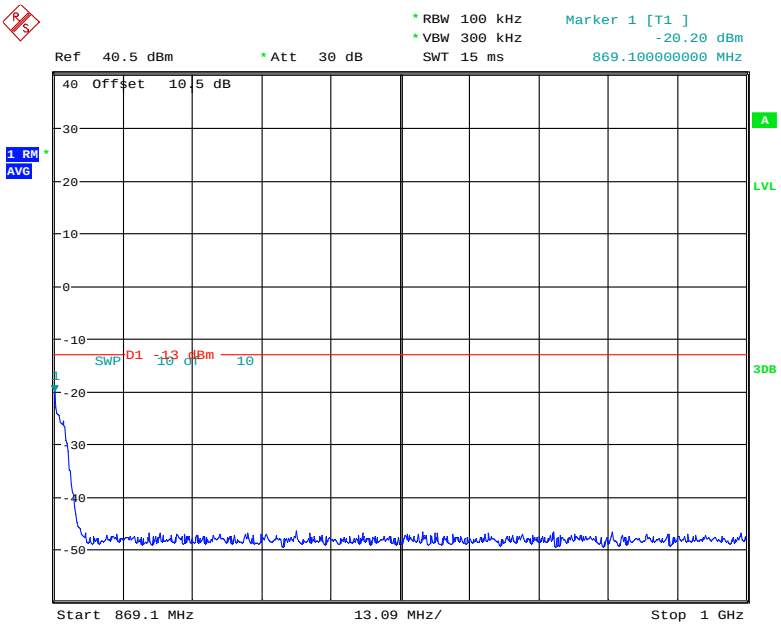
The testing was performed by Tracy Hu on 2018-02-28.

Test Mode: Transmitting, please refer to the following plots.

AWGN, 30MHz – 861.9 MHz, Low Channel



AWGN, 869.1 MHz – 1GHz, Low Channel



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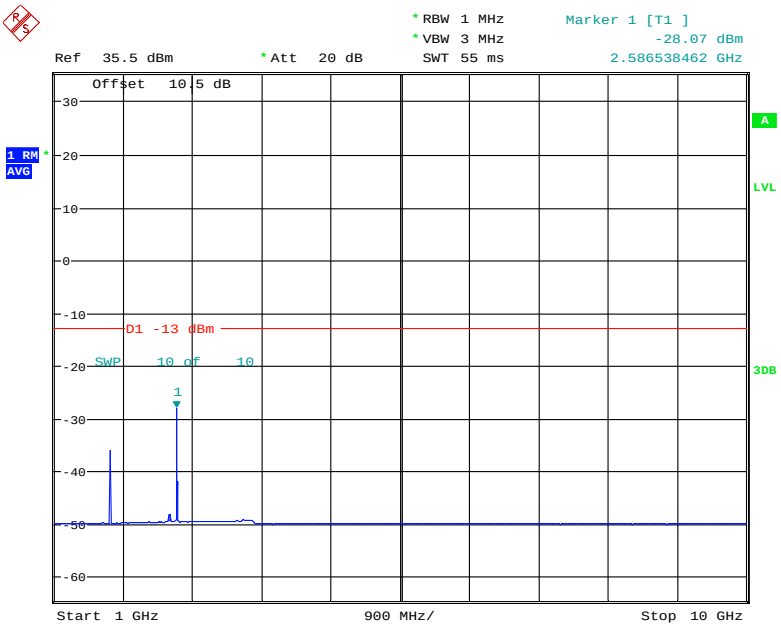
AWGN, 1GHz -10 GHz, Low Channel



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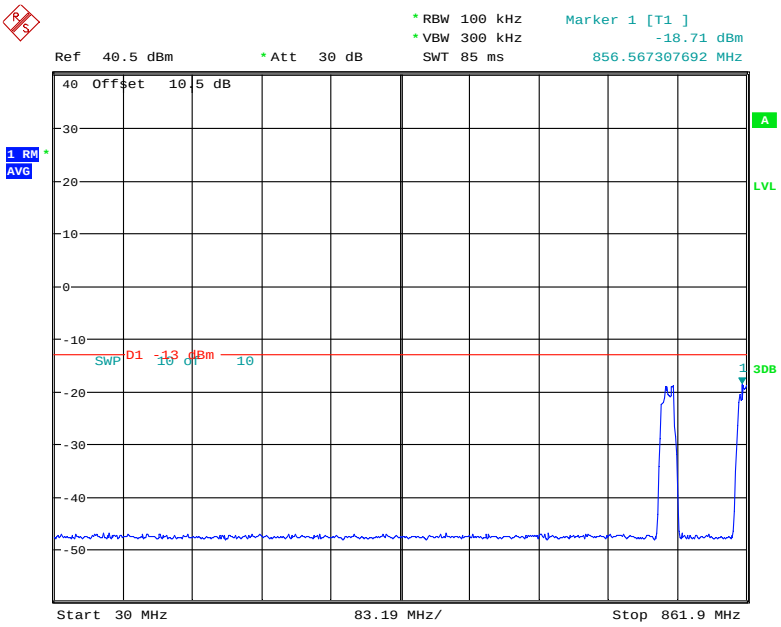
AWGN, 30MHz – 861.9 MHz, Middle Channel



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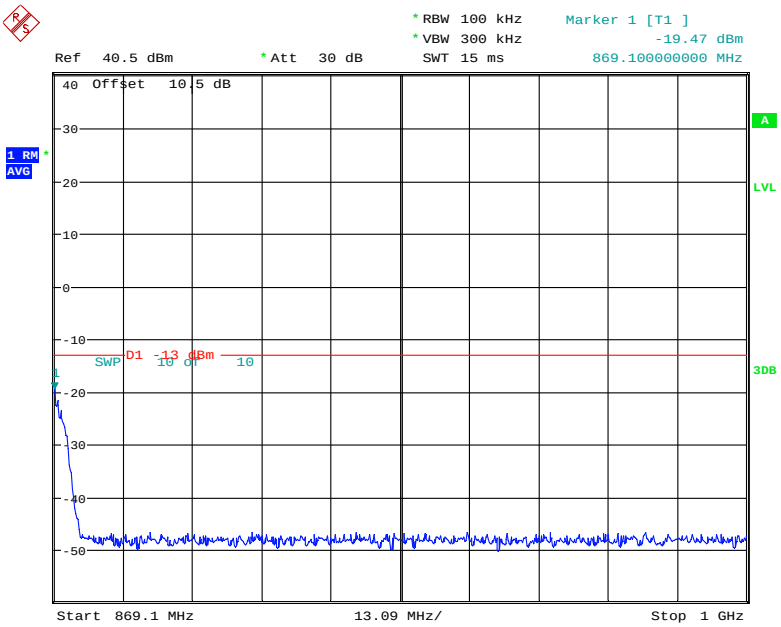
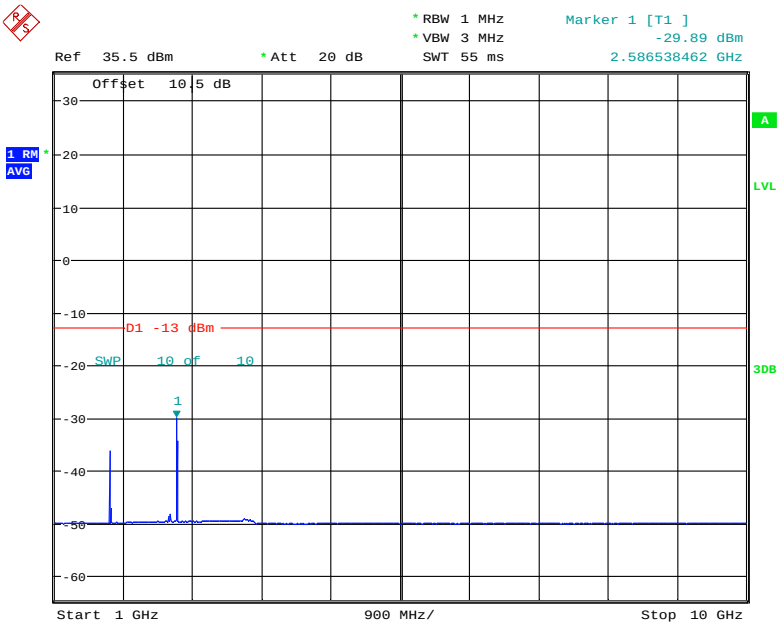
AWGN, 869.1 MHz – 1GHz, Middle Channel



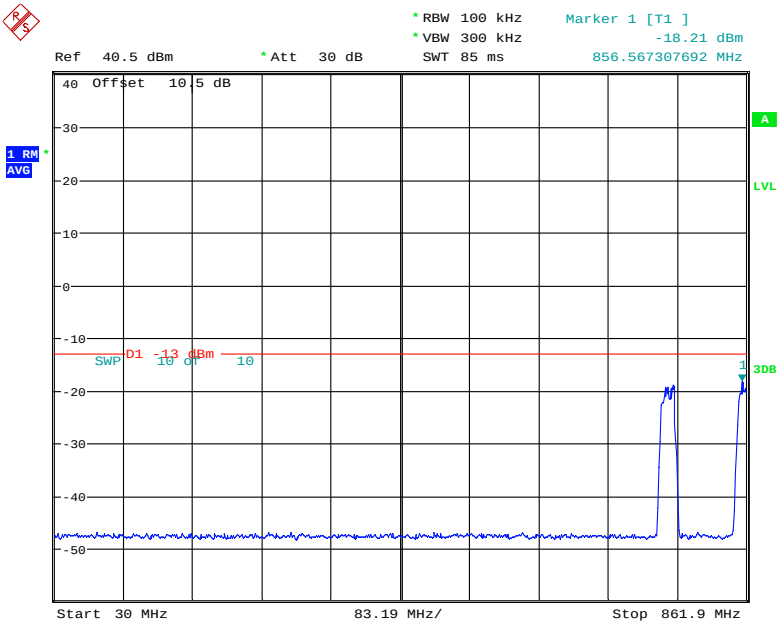
Date: 28.FEB.2018 17:23:11

AWGN, 1GHz -10 GHz, Middle Channel



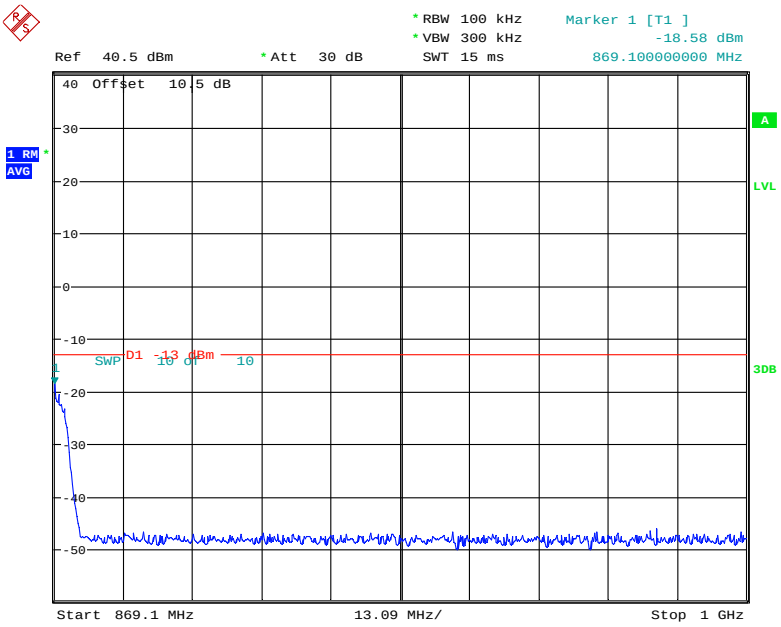
Date: 28.FEB.2018 16:42:53

AWGN, 30MHz – 861.9 MHz, High Channel



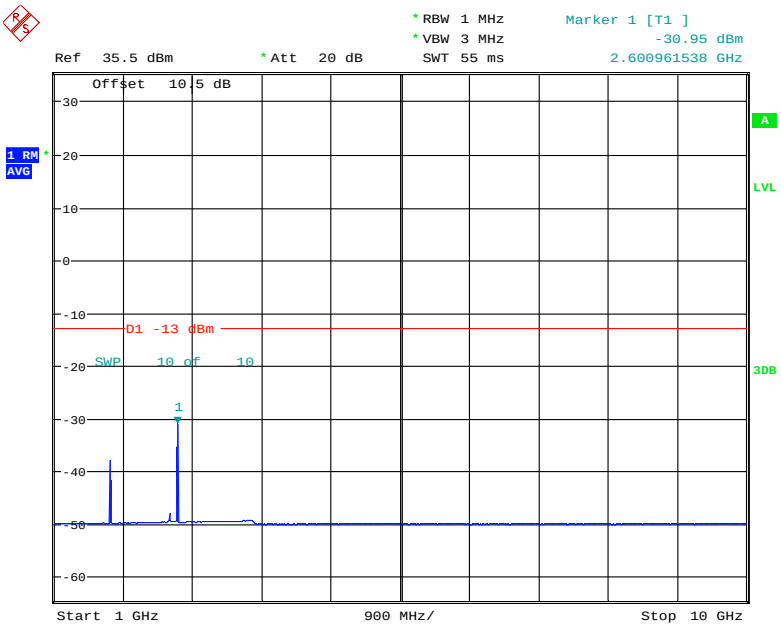
Date: 28.FEB.2018 17:22:19

AWGN, 869.1 MHz – 1GHz, High Channel



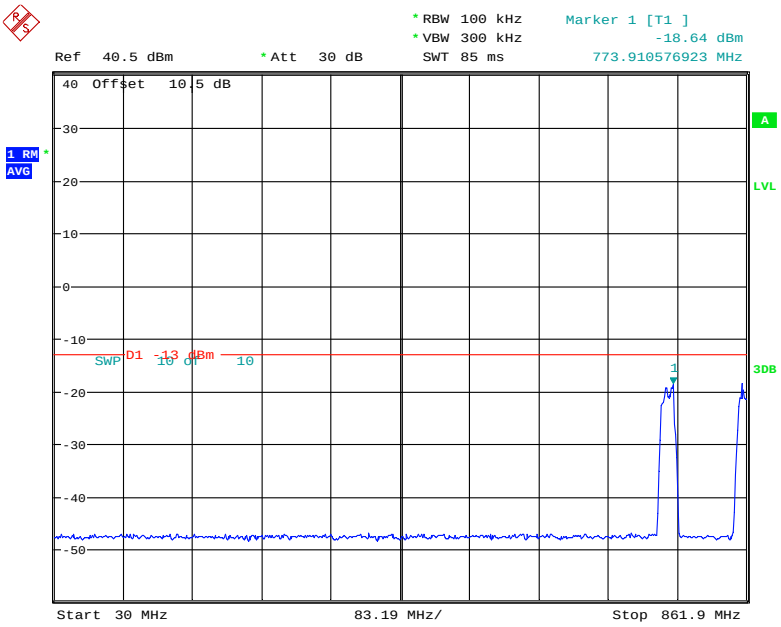
Date: 28.FEB.2018 17:22:47

AWGN, 1GHz -10 GHz, High Channel



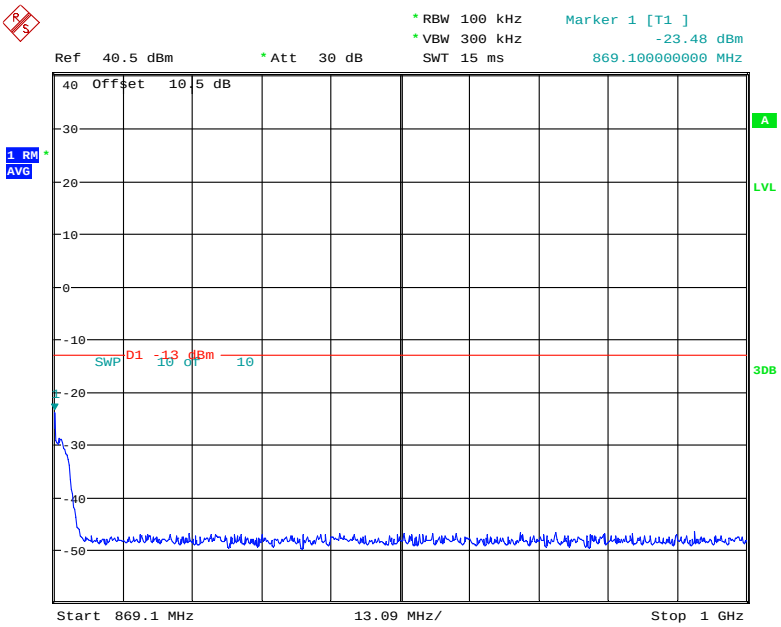
Date: 28.FEB.2018 16:43:22

GSM, 30MHz – 861.9 MHz, Low Channel



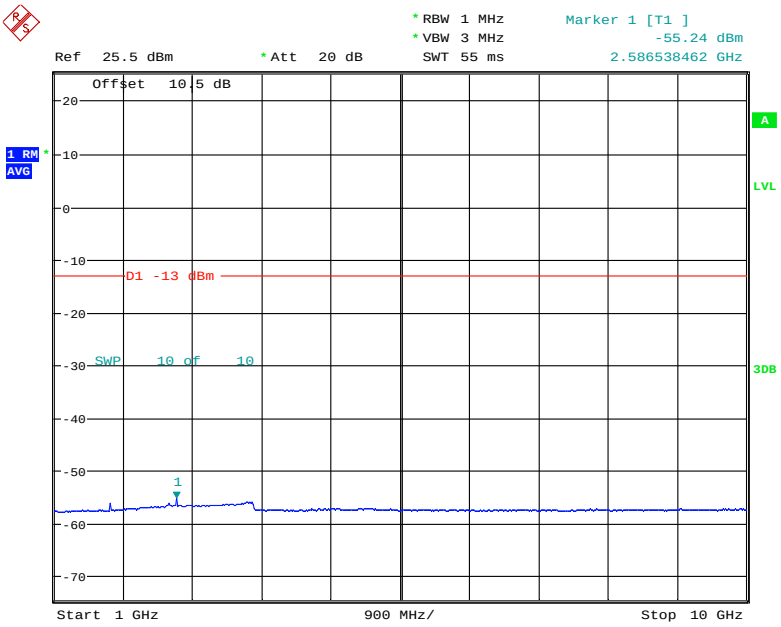
Date: 28.FEB.2018 17:27:32

GSM, 869.1 MHz – 1GHz, Low Channel



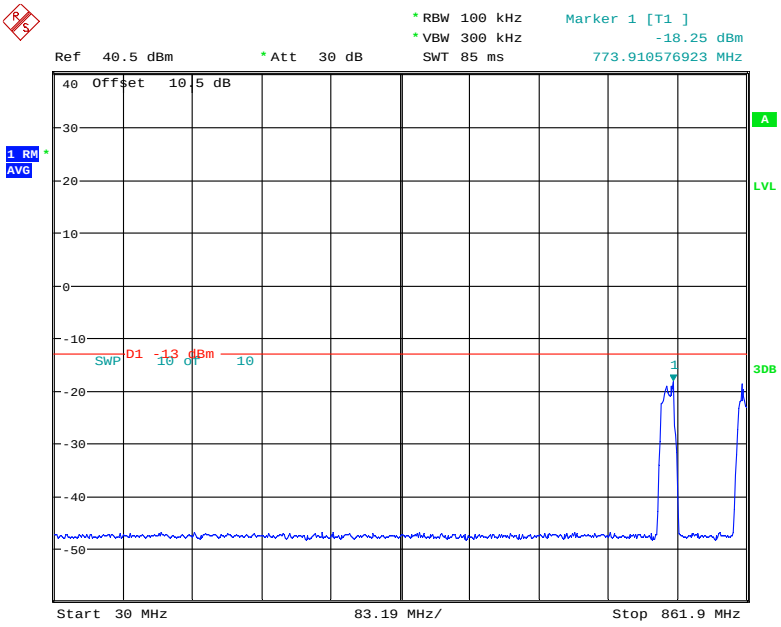
Date: 28.FEB.2018 17:25:07

GSM, 1GHz -10 GHz, Low Channel



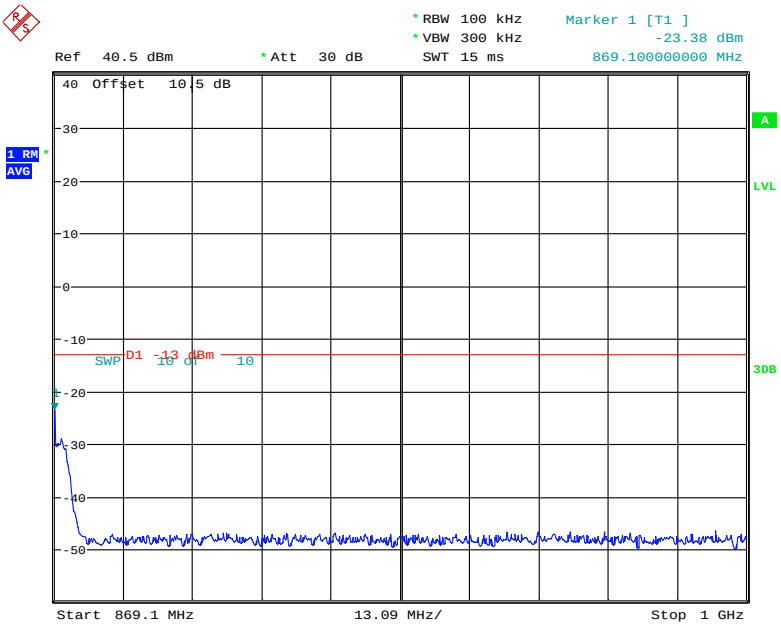
Date: 28.FEB.2018 16:34:26

GSM, 30MHz – 861.9 MHz, Middle Channel



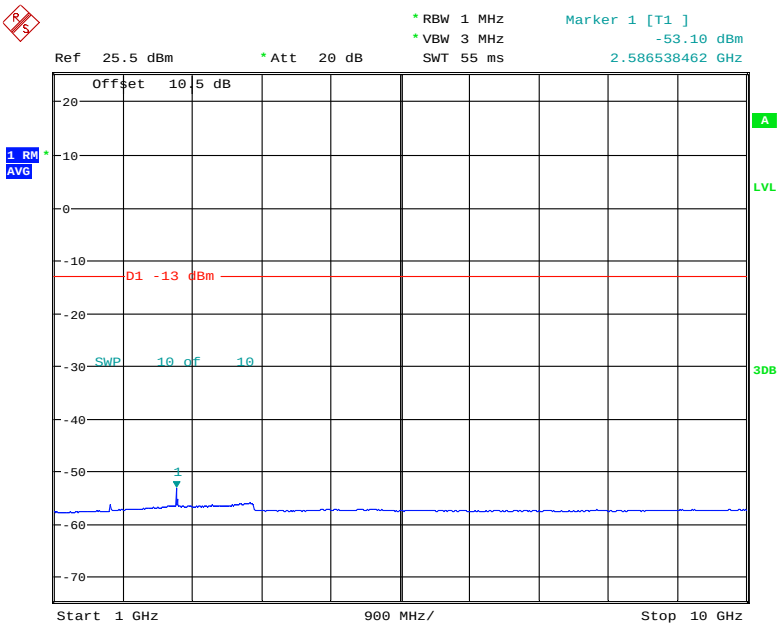
Date: 28.FEB.2018 17:27:08

GSM, 869.1 MHz – 1GHz, Middle Channel



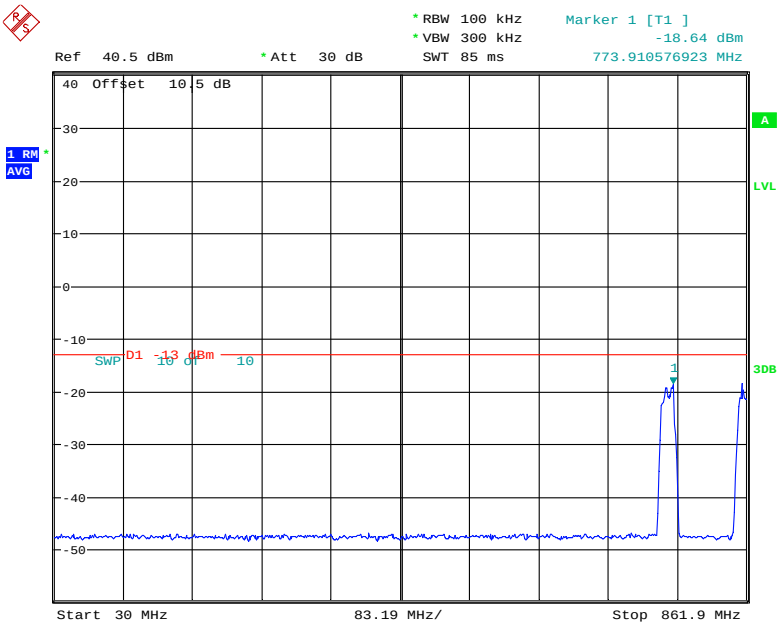
Date: 28.FEB.2018 17:25:29

GSM, 1GHz -10 GHz, Middle Channel



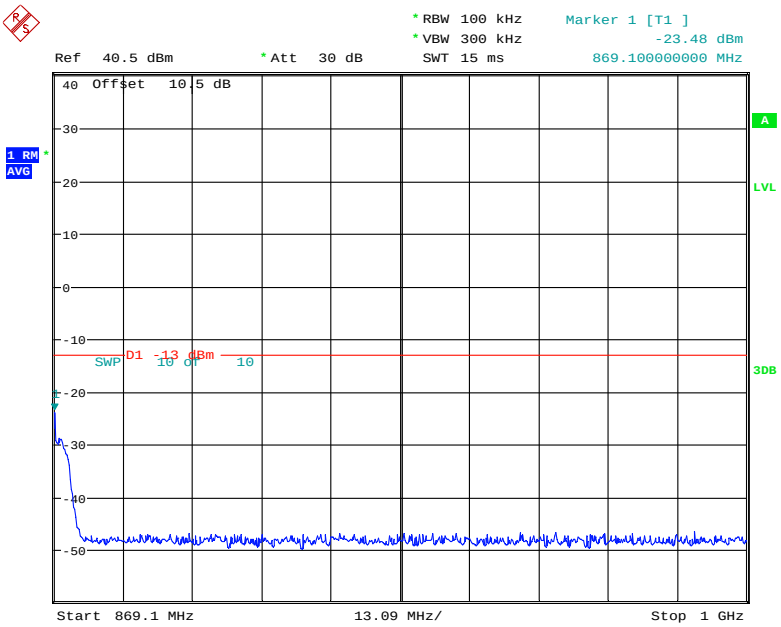
Date: 28.FEB.2018 16:34:05

GSM, 30MHz – 861.9 MHz, High Channel



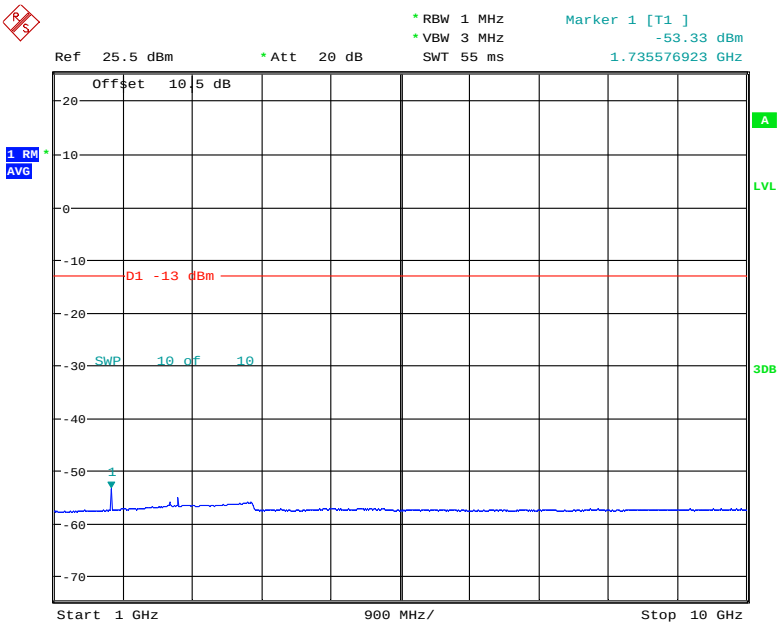
Date: 28.FEB.2018 17:27:32

GSM, 869.1 MHz – 1GHz, High Channel



Date: 28.FEB.2018 17:25:07

GSM, 1GHz -10 GHz, High Channel



FCC §90. 219(e)(3)– INTERMODULATION & BAND EDGES

Applicable Standard

According to FCC §90.219(e)(3), Spurious emissions from a signal booster must not exceed −13 dBm within any 100 kHz measurement bandwidth.

Test Procedure

Test Method: KDB 935210 D05 Indus Booster Basic Meas v01r02 section 3.6.2

a) Connect a signal generator to the input of the EUT.
If the signal generator is not capable of generating two modulated carriers simultaneously, then two discrete signal generators can be connected with an appropriate combining network to support this two-signal test.
b) Set the signal generator to produce two AWGN signals as previously described (e.g., 4.1 MHz OBW).
c) Set the center frequencies such that the AWGN signals occupy adjacent channels, as defined by industry standards such as 3GPP or 3GPP2, at the upper edge of the frequency band or block under test.
d) Set the composite power levels such that the input signal is just below the AGC threshold (see 3.2), but not more than 0.5 dB below. The composite power can be measured using the procedures provided in KDB Publication 971168 [R8], but it will be necessary to expand the power integration bandwidth so as to include both of the transmit channels. Alternatively, the composite power can be measured using an average power meter as described in KDB Publication 971168 [R8].
e) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation as necessary.
f) Set the RBW = reference bandwidth in the applicable rule section for the supported frequency band (typically 1 % of the EBW or 100 kHz or 1 MHz)
g) Set the VBW = 3 × RBW.
h) Set the detector to power averaging (rms) detector.
i) Set the Sweep time = auto-couple.
j) Set the spectrum analyzer start frequency to the upper block edge frequency, and the stop frequency to the upper block edge frequency plus 300 kHz or 3 MHz, for frequencies below and above 1 GHz, respectively.
k) Trace average at least 100 traces in power averaging (rms) mode.
l) Use the marker function to find the maximum power level.
m) Capture the spectrum analyzer trace of the power level for inclusion in the test report.
n) Repeat steps k) to m) with the composite input power level set to 3 dB above the AGC threshold.
o) Reset the frequencies of the input signals to the lower edge of the frequency block or band under test.
p) Reset the spectrum analyzer start frequency to the lower block edge frequency minus 300 kHz or 3 MHz, for frequencies below and above 1 GHz, respectively, and the stop frequency to the lower band or block edge frequency.
q) Repeat steps k) to n).
r) Repeat steps a) to q) with the signal generator configured for a single test signal tuned as close as possible to the block edges.
s) Repeat steps a) to r) with the narrowband test signal.
t) Repeat steps a) to s) for all authorized frequency bands or blocks used by the EUT.

Test Data

Environmental Conditions

Temperature:	25~26 ℃
Relative Humidity:	54~55 %
ATM Pressure:	101.0~101.5 kPa

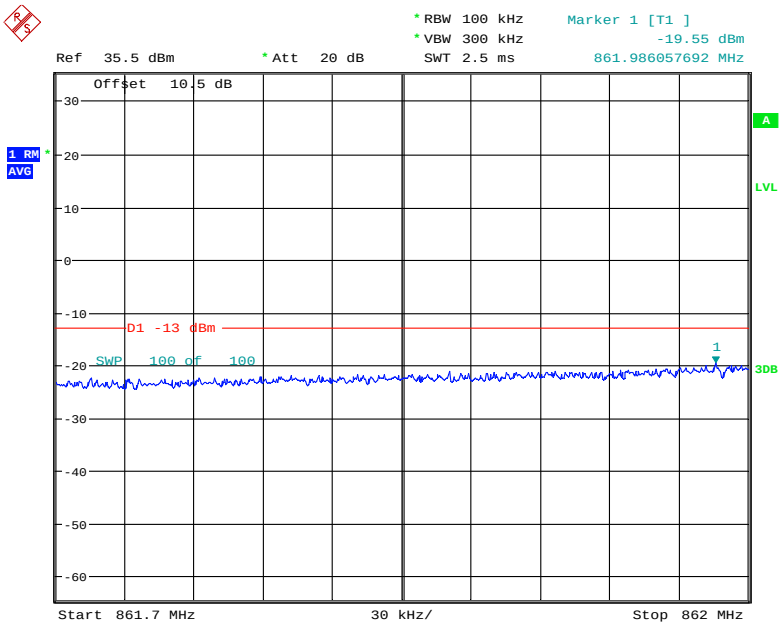
The testing was performed by Tracy Hu from 2018-02-28 to 2018-03-01.

Test Mode: Transmitting

Test Result: Compliance. Please refer to following plots.

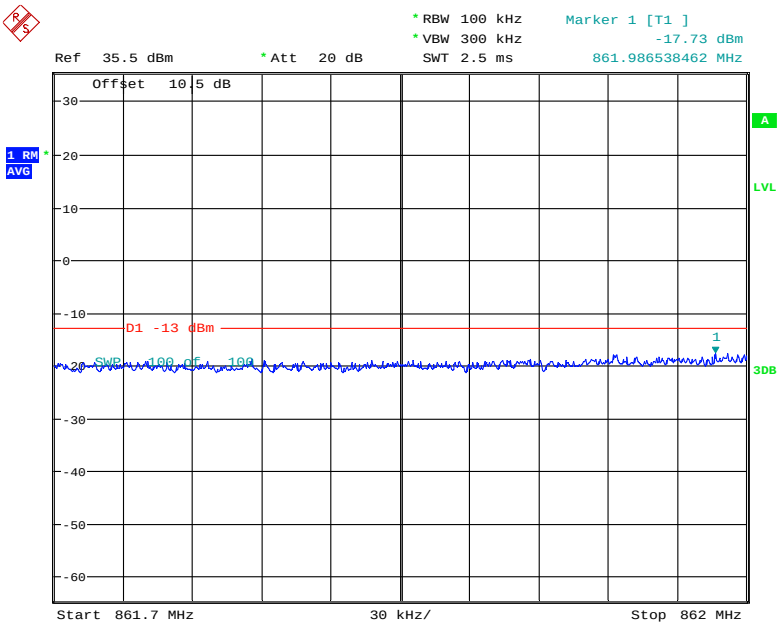
Intermodulation

AWGN, Left Band Edge, AGC



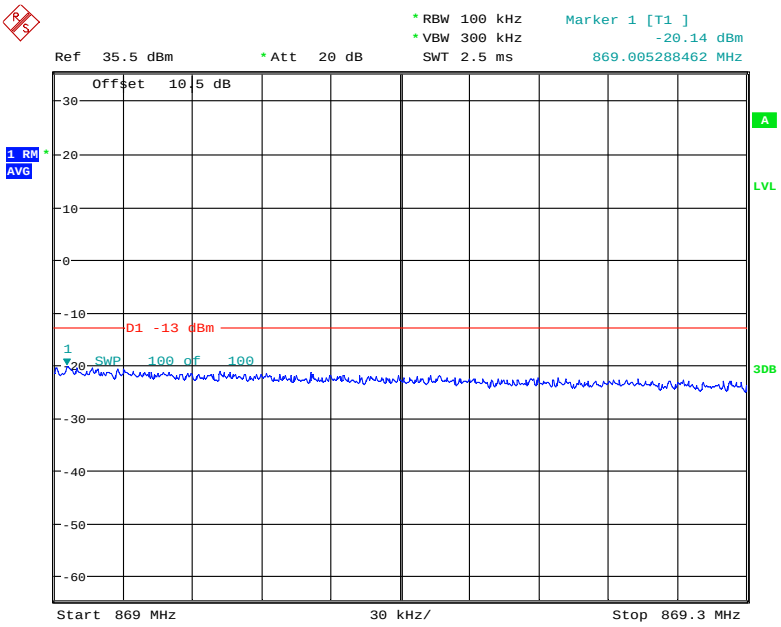
Date: 1.MAR.2018 09:54:48

AWGN, Left Band Edge, AGC+3



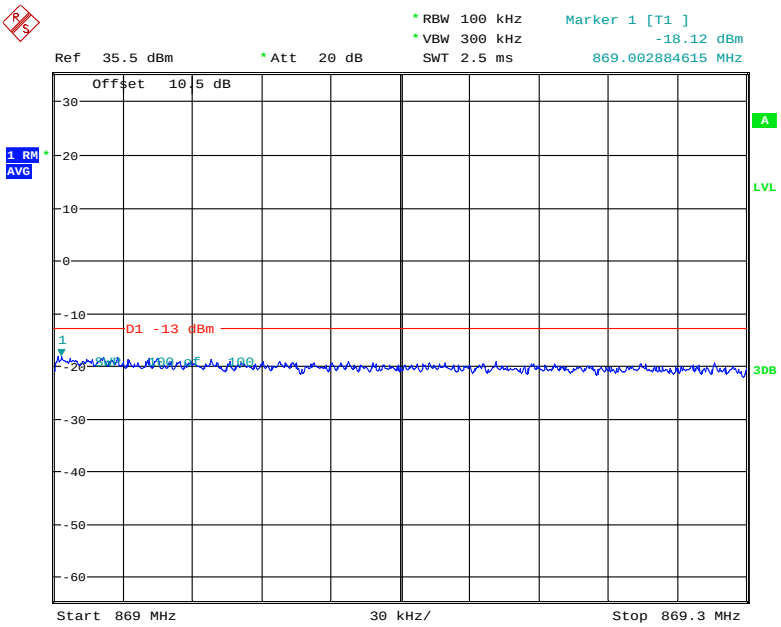
Date: 1.MAR.2018 09:55:29

AWGN, Right Band Edge, AGC



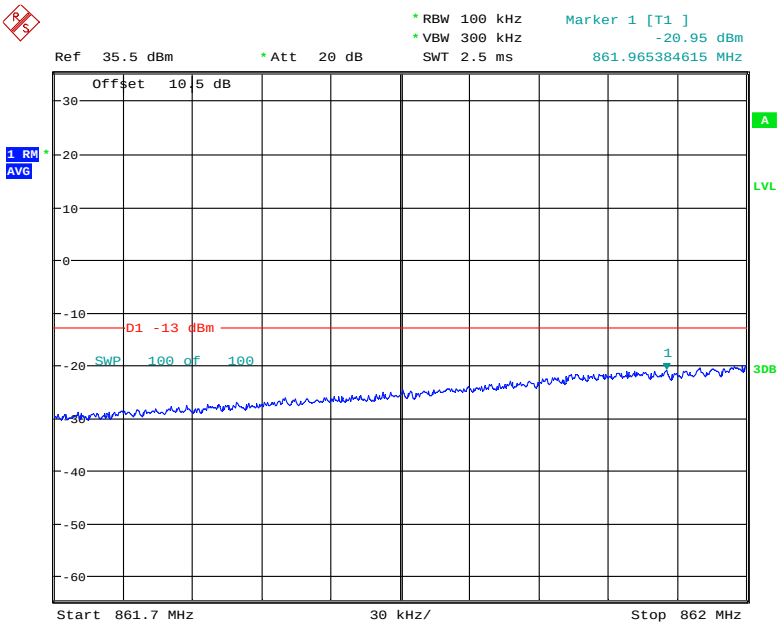
Date: 1.MAR.2018 09:57:28

AWGN, Right Band Edge, AGC+3



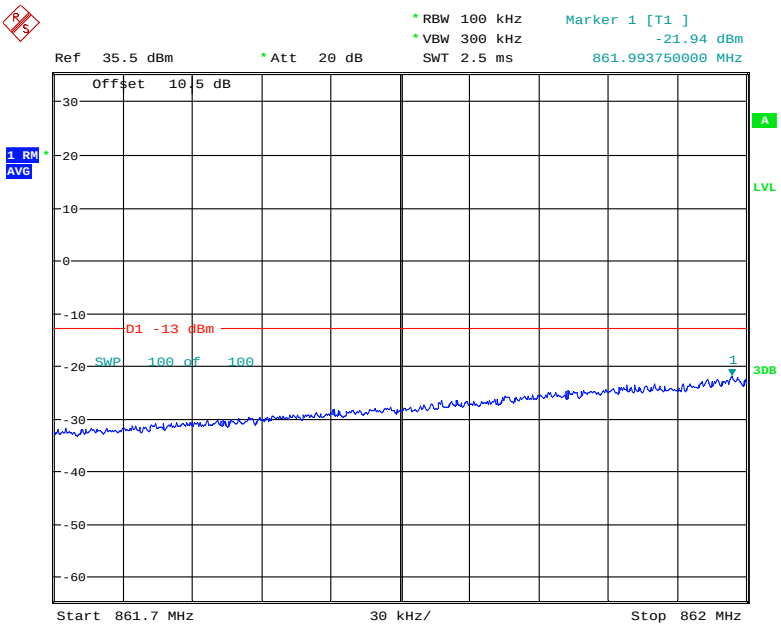
Date: 1.MAR.2018 09:56:32

GSM, Left Band Edge, AGC



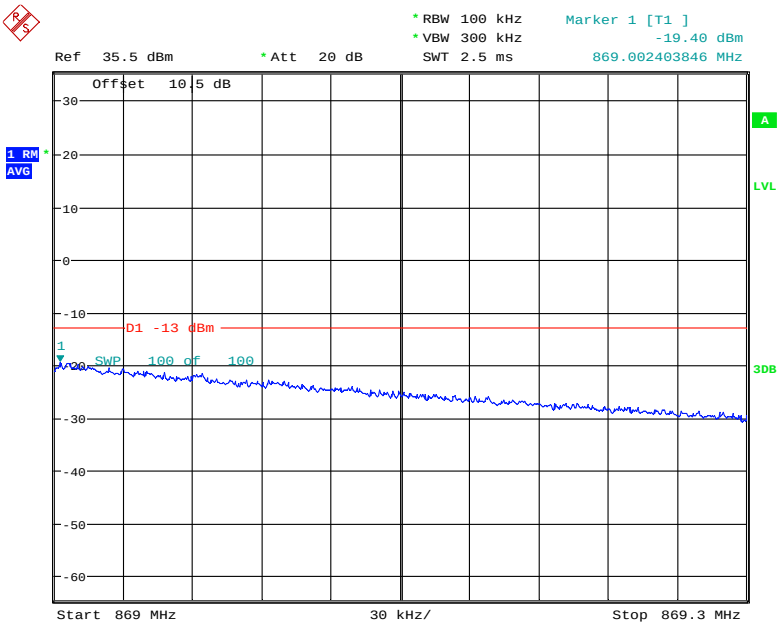
Date: 1.MAR.2018 10:01:52

GSM, Left Band Edge, AGC+3



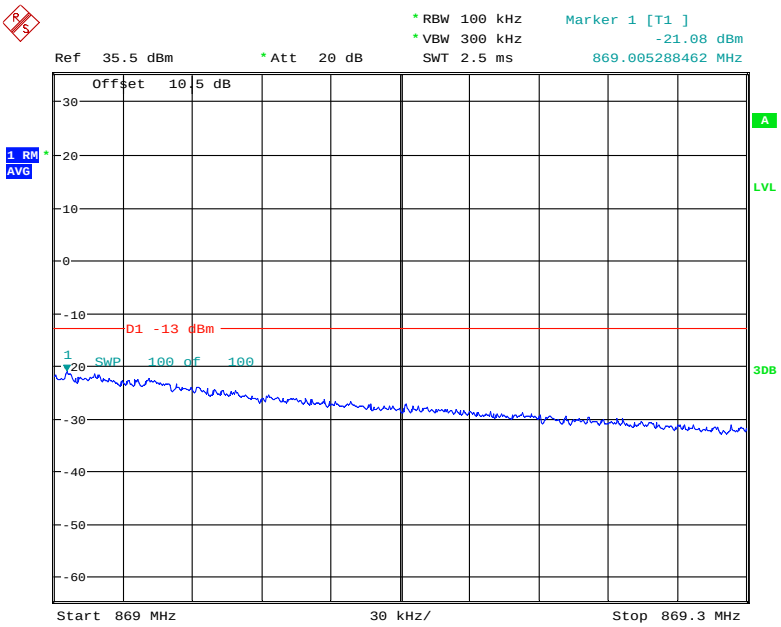
Date: 1.MAR.2018 10:01:16

GSM, Right Band Edge, AGC



Date: 1.MAR.2018 09:59:45

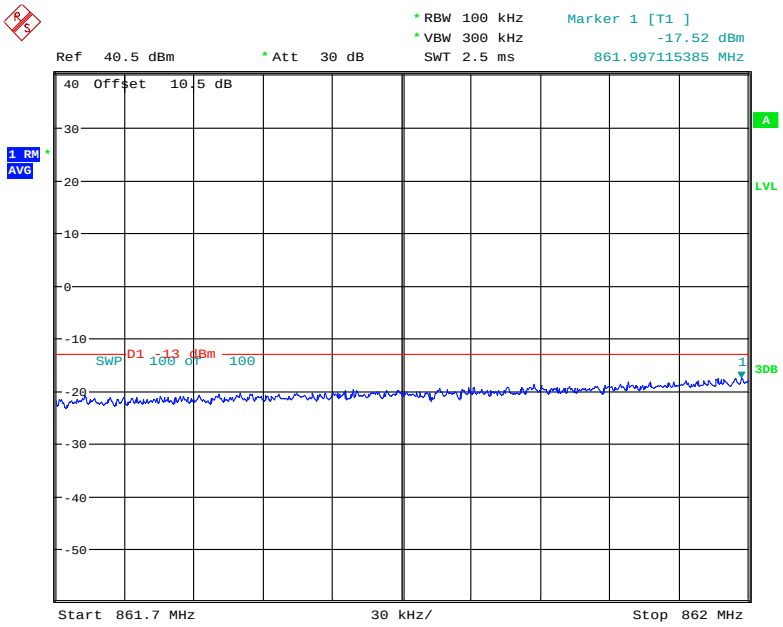
GSM, Right Band Edge, AGC+3



Date: 1.MAR.2018 10:00:14

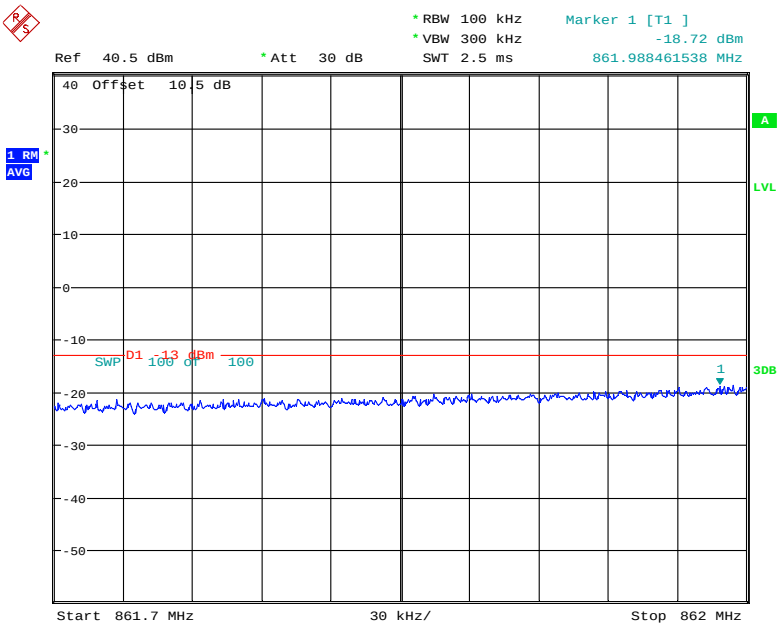
Band Edge:

AWGN, Left Band Edge, AGC



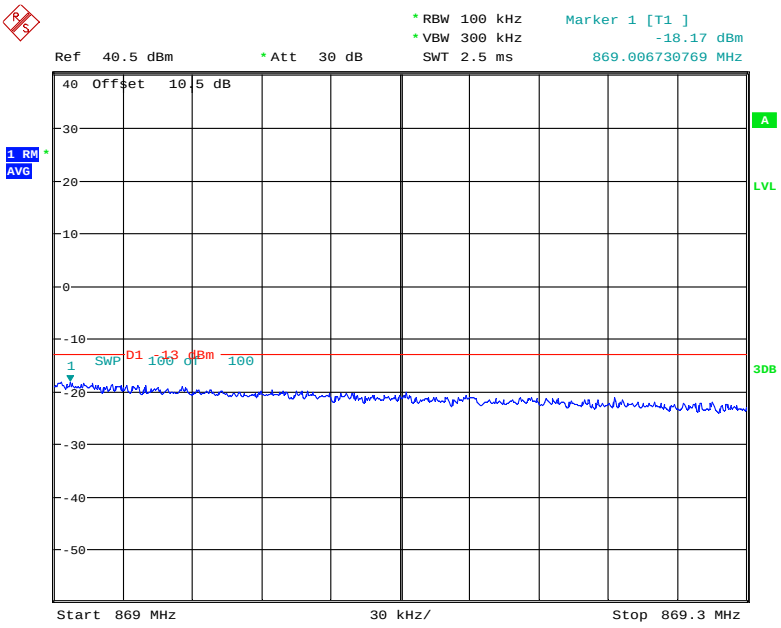
Date: 28.FEB.2018 19:14:02

AWGN, Left Band Edge, AGC+3



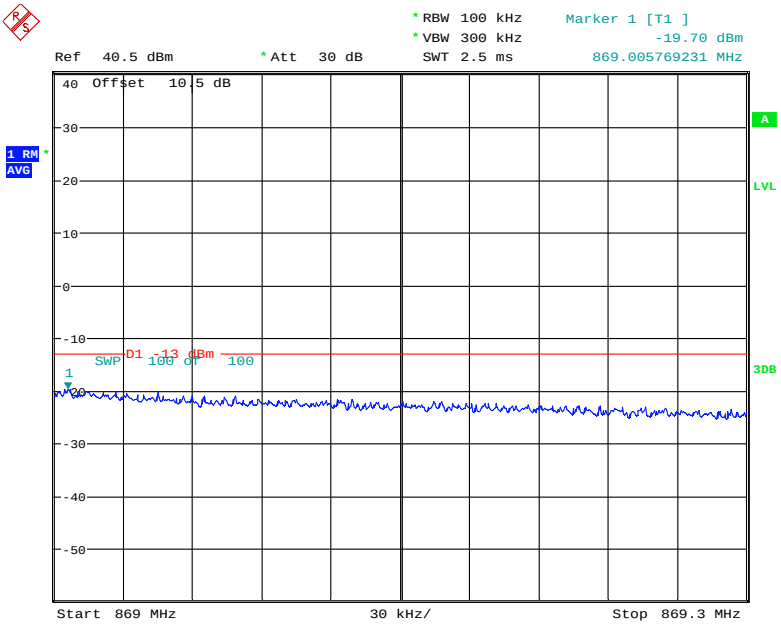
Date: 28.FEB.2018 19:13:37

AWGN, Right Band Edge, AGC



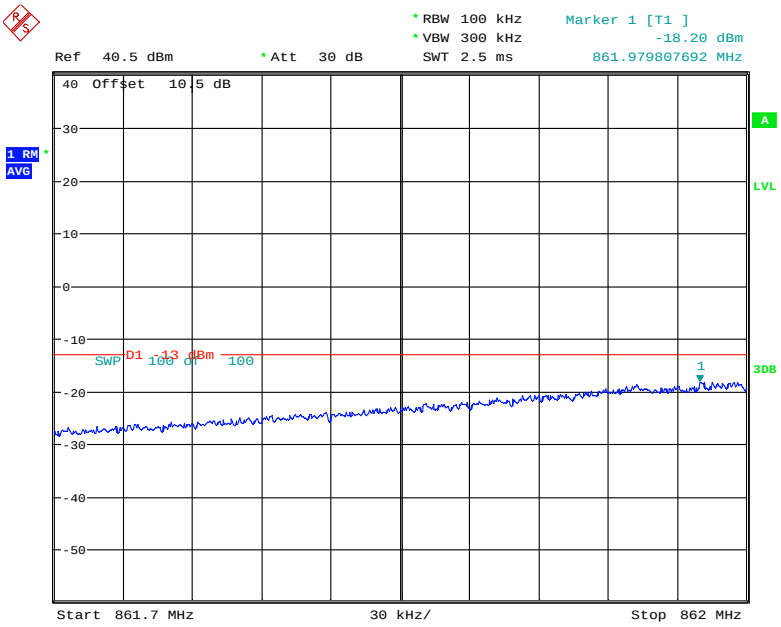
Date: 28.FEB.2018 19:12:39

AWGN, Right Band Edge, AGC+3



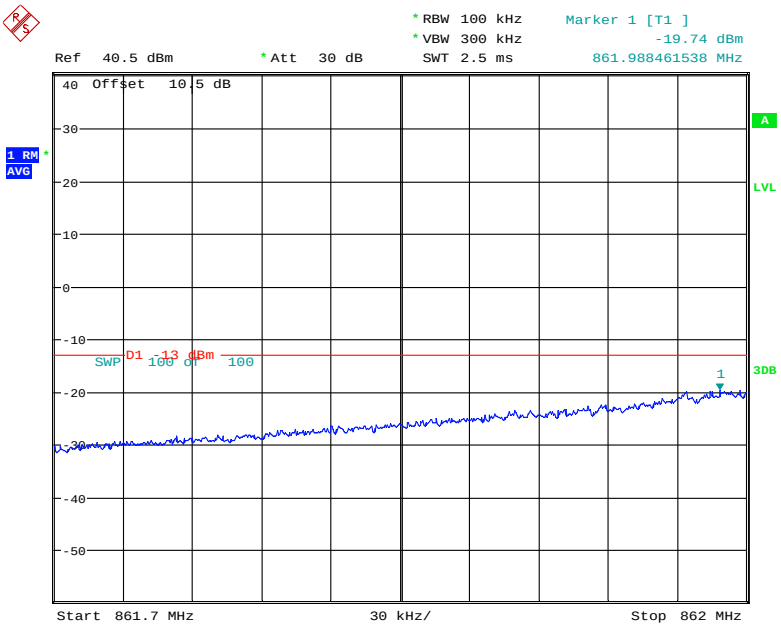
Date: 28.FEB.2018 19:12:59

GSM, Left Band Edge, AGC



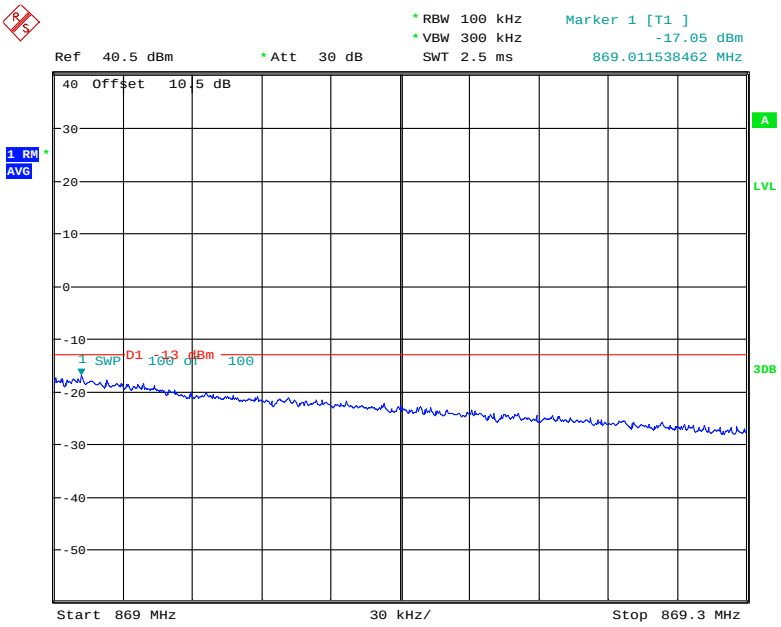
Date: 28.FEB.2018 19:17:43

GSM, Left Band Edge, AGC+3



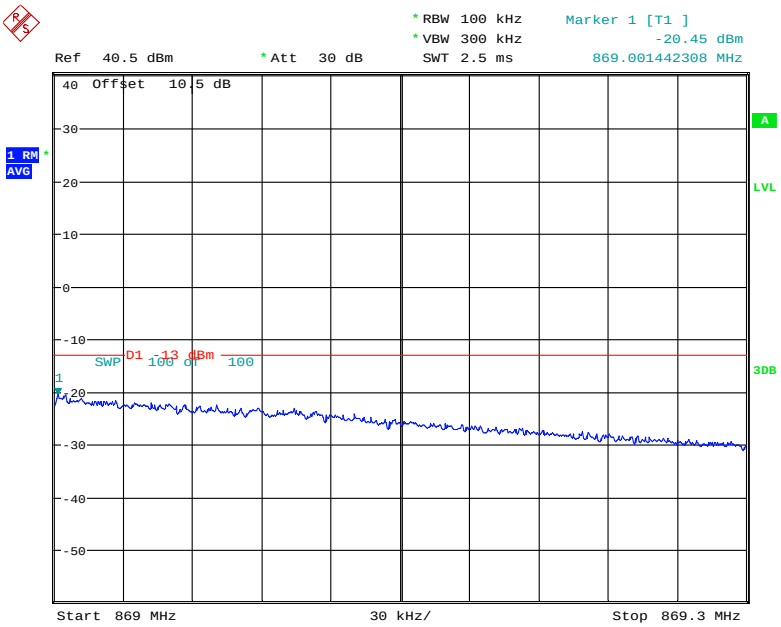
Date: 28.FEB.2018 19:18:18

GSM, Right Band Edge, AGC



Date: 28.FEB.2018 19:17:01

GSM, Right Band Edge, AGC+3



Date: 28.FEB.2018 19:16:30

FCC §90.219, KDB 935210 D05 – OUT-OF-BAND REJECTION

Applicable Standard

KDB 935210 D05 section 3.3

Test Procedure

Test Method: KDB 935210 D05 Indus Booster Basic Meas v01r02 section 3.3

a) Connect a signal generator to the input of the EUT.
b) Configure a swept CW signal with the following parameters:
1) Frequency range = ± 250 % of the passband, for each applicable CMRS band (see also KDB Publication 935210 D02 [R7] and KDB Publication 634817 [R5] about selection of frequencies for testing and for grant listings).
2) Level = a sufficient level to affirm that the out-of-band rejection is > 20 dB above the noise floor and will not engage the AGC during the entire sweep.
3) Dwell time = approximately 10 ms.
4) Number of points = SPAN/(RBW/2).
c) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation.
d) Set the span of the spectrum analyzer to the same as the frequency range of the signal generator.
e) Set the resolution bandwidth (RBW) of the spectrum analyzer to be 1 % to 5 % of the EUT passband, and the video bandwidth (VBW) shall be set to ≥ 3 × RBW.
f) Set the detector to Peak Max-Hold and wait for the spectrum analyzer's spectral display to fill.
g) Place a marker to the peak of the frequency response and record this frequency as f 0 .
h) 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 −20 dB down amplitude, to determine the 20 dB bandwidth.
i) Capture the frequency response of the EUT.
j) Repeat for all frequency bands applicable for use by the EUT.

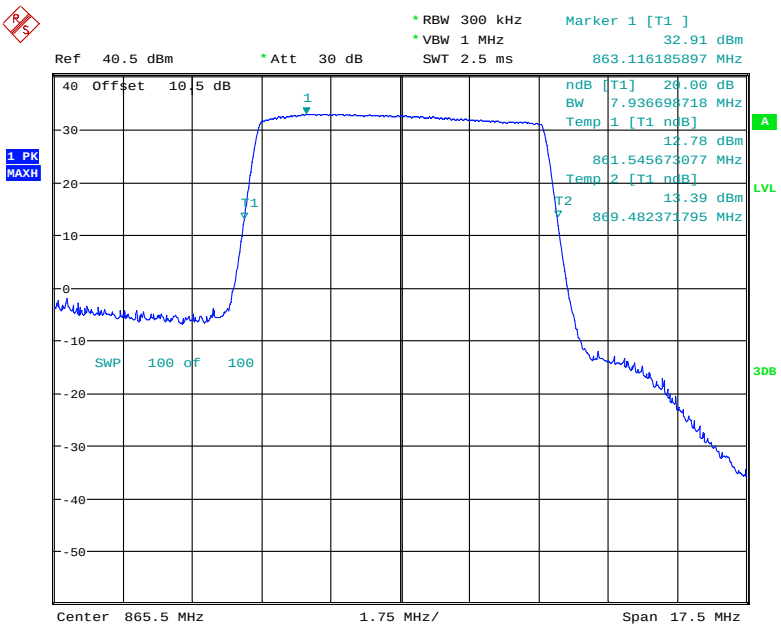
Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	56 %
ATM Pressure:	101.5 kPa

The testing was performed by Tracy Hu on 2018-02-28.

Test Mode: Transmitting,please refer to the following plots.



Date: 28.FEB.2018 19:54:48

******* END OF REPORT *******